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ABSTRACT

The Southwestern Library Interstate Cooperative Endeavor (SLICE) project was an "experimental effort to determine the feasibility of a multi-state library coordination agency" involving the states of Arizona, Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The success or failure of the project's specific objectives are outlined in this final report. A financial summary of 1974 operations is provided in tabular form. The bulk of the document consists of appendixes containing papers commissioned by SLICE. Among the topics covered are network planning library automation, telecommunication, and the project on Continuing Education for Librarians in the Southwest. (LS)

ED103003

SOUTHWESTERN LIBRARY INTERSTATE COOPERATIVE ENDEAVOR (SLICE)

A Project of the

SOUTHWESTERN LIBRARY ASSOCIATION

TO PROMOTE ALL LIBRARY INTERESTS IN THE SOUTHWEST AND MEXICO

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FINAL

SLICE OFFICE REPORT

For The Period

July 1, 1974 to December 31, 1974

CLR No. 559

Prepared By

SLICE Office Staff

January 27, 1975

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CLR No. 559

Prepared By

SLICE Office Staff

January 27, 1975

SOUTHWESTERN LIBRARY ASSOCIATION

TO PROMOTE ALL LIBRARY INTERESTS IN THE SOUTHWEST AND MEXICO

PLEASE ADDRESS YOUR REPLY TO:
SLICE Office
7371 Paldao
Dallas, Texas 75240
214/234-1555

February 12, 1974

Dr. Fred C. Cole, President
Council on Library Resources
One Dupont Circle N.W.
Suite 620
Washington, D. C. 20036

Re: CLR 559

Dear Dr. Cole:

Enclosed please find one copy of the SLICE Office Report For The Period July 1, 1974 to December 31, 1974 including the financial and narrative information.

Since this is the final report of this project, 24 additional copies are being sent separately to your office pursuant to the requirements of the grant.

It has been a privilege and a pleasure to have directed this project. Thank you, Dr. Cole, and the Council, for your continued interest and support.

Sincerely,

Maryann Duggan

Maryann Duggan
SLICE Office Director

MD:bas

ACRONYM GLOSSARY

The acronyms used in this report have the following meanings - loosely translated:

ABC - Amigos Bibliographic Council

CELS - Continuing Education for Librarians in the Southwest (a SLICE project funded by each of the six SWLA state library agencies)

CLR - The Council on Library Resources

CONSER - Conversion of Serials Records

IUC - Inter-University Council of North Texas

NEH - National Endowment for the Humanities

NELINET - New England Library Information Network

SLICE - Southwestern Library Interstate Cooperative Endeavor (a project of the Southwestern Library Association)

SOLINET - Southeastern Library Network, Inc.

SWLA - The Southwestern Library Association (an organization of librarians, library trustees and libraries in Arizona, Arkansas, Louisiana, New Mexico, Oklahoma and Texas)

UTD - University of Texas at Dallas

UTHSC - University of Texas Health Science Center

SLICE OFFICE REPORT FOR THE PERIOD July 1, 1974 to December 31, 1974 INCLUDING FINAL RECOMMENDATIONS REGARDING SOUTHWESTERN MULTISTATE NETWORKING

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ACKNOWLEDGEMENT

The work reported herein would not have been possible without the financial support of the Council on Library Resources, Inc., and the state library agencies in Arizona, Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Additionally, the assistance of the SWLA Board and the state library associations in each of the six states is gratefully acknowledged. The University of Texas Southwestern Medical School's organizational support is also appreciated.

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SLICE Office Report For The Period

July 1, 1974 to December 31, 1974

Final Recommendations Regarding Southwestern Multistate to Networking

This report is intended to (1) document the activities of the SLICE* Project during the last two quarters of the two year funding phase, (2) record the transition of the old SLICE Office activities to the new SLICE Office under the direction of Ms. Peggy O'Donnell and (3) present the final recommendations regarding a possible Southwestern multistate bibliographic network. This is the final report of the SLICE Project under CLR grant No. 559 and under the SWLA contract with UTHSC for operation of the SLICE Office.

I. Office Operations and Project Management

During this six months period, the incumbent SLICE Office Director (Maryann Duggan) was phasing out according to the following schedule:

July, August - 50% FTE on SLICE
September, October, November, December - 25% FTE on SLICE

The new SLICE Office Director assumed full time (100% FTE) responsibilities on November 1, 1974. Mrs. Beverly Sweeney, the SLICE Office secretary, continued to work 62.5% FTE in the SLICE Office throughout the time period covered in this report.

On November 1, 1974, the new SLICE Office was established on the campus of University of Texas at Dallas jointly with the SWLA Headquarters Office. All of the CELS files and records were transferred from the old SLICE Office (on Stemmons) to the new office at University of Texas at Dallas at that time. The old SLICE Office - and Mrs. Sweeney and Ms. Duggan - moved to the new Florence Bioinformation Center on the Harry Hines Blvd. Campus of The University of Texas Health Science Center on September 30, 1974. This change in physical location was necessary due to the SWLA contract with UTHSC and the employment - faculty status of Mrs. Sweeney and Ms. Duggan with UTHSC. Furthermore, SWLA had received a grant from NEH for a special project and needed to have office facilities which could accomodate not only the SWLA staff but also the new SLICE Office staff and the NEH project staff. The bibliographic networking project files and all fiscal office files relating to the CLR grant and the SWLA/UTHSC contract were moved with the old SLICE Office staff to the Florence Bioinformation Center location. These files and records are being transferred to the SWLA/SLICE Office at University of Texas at Dallas during the week of January 27, 1975.

This report previously covers the activities of the bibliographic network project although a summary of the CELS project activities is included.

During the period covered by this report, the SLICE Office network project activity wrote a total of 50 letters, placed long distance calls amounting to $374.02 and spent $535.67 on travel. These communication/travel expenses for

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* See Acronym Glossary for definitions of all acronyms used in this report.

the year 1974 are tabulated on the following pages. The reduction in these expenses and activites during the last two quarters correlates positively with the reduced staffing level in the SLICE network project. The data for the first and second quarters more correctly reflect the level of activity and expenditures that should be expected in a project of this nature.

When the CLR grant is closed-out and the SLICE Office at UTHSC shut down and the files and records moved to the SWLA/SLICE Office at UTD (by January 31, 1975), the SWLA Office staff will handle accounting and reporting on future SLICE Office activites and project management.

The SLICE Project Staff and SWLA are most appreciative of the "home" provided by UTHSC during the past three years. The host institution (UTHSC) has given the embryonic SLICE Project a certain credibility through this synergistic relationship.

Since this project was an experimental effort to determine the feasibility of a multi-state library coordination agency, it seems appropriate to identify some important criteria for a "home" of such an agency. These comments are not intended to be critical* of UTHSC's hospitalities but to assist other regions who may be contemplating a SLICE-like project.

Based on the three year SLICE experience, the ideal "home" should consider these criteria:

1. Physical Aspects

   (a) Is there adequate space for present and anticipated staff, for supplies storage, for files, for group meetings, for parking of staff and visitors?
   (b) Are the quarters reasonably attractive in keeping with the level of expectations of visitors and staff?
   (c) Is there reasonable assurance that the space is available for long enough periods so offices will not be required to move at frequent intervals?

2. Support Services Aspects

   (a) Is it possible to obtain adequate library, accounting, printing, photocopying, computer, mail, telephone, and janitorial services? - at reasonable costs?
   (b) Are the personnel policies and salary administration and benefit policies of the host institution such that the flexibility required by this type of project can be achieved?

3. Organizational/Administrative Aspects

   (a) Is the organizational/administrative environment conducive "intellectual, creative autonomy"?
   (b) Can contract negotiations and arrangements be modified as needed?

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* On October 18th, SWLA officially acknowledged appreciation to UTHSC, Dr. Hendricks and Dr. Sprague by passing resolutions. (See SWLA Newsletter, vol. 23, No. 5, p. 3.

(c) Is there a possible conflict of interest between the goals of the project and the host institution?
(d) Is the project staff "locked in" an institutional administrative structure which will inhibit achievement of the project goals?

(e) What "routes of re-address" exist in the event of a conflict between project staff and host institution?
(f) Will the project become lost in a maze of institutional hierarchical levels?

Using the above criteria and based on three years experience, it is recommended that serious consideration be given to the matter of location of a "home" for a project of this type. Affiliation with a multistate agency concerned with educational, library, or public administration affairs might be a more satisfactory option than contracting with an institution concerned with only one state or only one field of interest. Although the "home" is not the ultimate limiting constraint on project achievement, it does have considerable influence - in many ways - on the autonomy, productivity and success of the project. Selection of the institutional "home" is important and should be done judiciously and with deliberation of many factors.

Ideally, a multi-state library agency should have sufficient legal base and cash-flow (funding) to enable the achievement of sufficient critical mass to be organizationally autonomous and not be dependent on a host institution. The achievement of this status is discussed in more detail in the next section.

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SUMMARY OF SLICE OFFICE TRAVEL EXPENSES
January 1, 1974 to December 31, 1974
As Incurred*

Site Visited	Total First Quarter	Total Second Quarter	Total Third Quarter	Total Fourth Quarter	Total For 1974	Total For 1973
Arizona	$ -	$ -	$ -	$ -	$ -	$ -
Arkansas	-	-	-	-	-	187.14
Louisiana	198.77	-	-	-	198.77	109.84
New Mexico		-	-	-		224.36
Oklahoma	112.79	-	-	-	112.79	271.34
Texas	183.84	62.57	63.20	202.78	512.39	642.10
Total for Region	$495.40	$ 62.57	$ 63.20	$202.78	$ 823.95	$1,434.78
Out of Region	330.37	50.12	269.69	-	650.18	1,342.99
Total	$825.77	$112.69	$332.89	$202.78	$1,474.13	$2,777.77

* Includes only expenses paid by SLICE Office; does not include expenses refunded by another agency, such as Arizona State Library for workshops conducted in Arizona, etc.

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SUMMARY OF SLICE OFFICE LETTER COMMUNICATIONS
January 1, 1974 to December 31, 1974*

Location of Person Contacted	Total First Quarter	Total Second Quarter	Total Third Quarter	Total Fourth Quarter	Total For 1974	Total For 1973
Arizona	1	10	-	9	20	26
Arkansas	2	1	-	-	3	26
Louisiana	1	2	-	-	3	14
New Mexico	4	2	1	-	7	21
Oklahoma	4	4	1	2	11	60
Texas	7	14	16	8	45	107
Total for Region	19	33	18	19	89	254
Out of Region	13	29	11	2	55	127
Total	32	62	29	21	144	381

* Number of original letters written by SLICE Office. Each letter has about five carbon copies. Thus approximately 720 separate letters were mailed.

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SUMMARY OF SLICE OFFICE LONG DISTANCE TELEPHONE COSTS
January 1, 1974-December 31, 1974
As Calls Occurred

Location of Person Called	Total First Quarter	Total Second Quarter	Total[1] Third Quarter	Total[2] Fourth Quarter	Total For 1974	Total For 1973
Arizona	$ 39.05	$ 31.05	$ 10.40	$ 3.55	$ 84.05	$ 58.53
Arkansas	11.75	18.61	6.85	2.10	39.31	11.65
Louisiana	27.52	30.56	8.15	2.48	68.71	64.74
New Mexico	32.17	30.98	19.97	4.55	87.67	125.25
Oklahoma	55.35	49.61	65.30	27.60	197.86	349.73
Texas	118.65	92.90	95.67	21.87	329.09	322.62
Total for Region	$284.49	$253.71	$206.35	$ 62.15	$ 806.69	$ 932.57
Out of Region	115.10	68.65	55.79	49.74	289.28	267.18
Total	$399.59	$322.36	$262.13	$111.89	$1,095.97	$1,199.75

(1) Includes calls placed during period 6/12/74 through 9/11/74.

(2) Includes calls placed during period 9/16/74 through 12/3/74.

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II. Project 1: Planning A Six-State Regional Bibliographic Network

During the two quarters covered by this report the main thrust of this Project was wrapping-up pending activities and developing a final series of recommendations.

Specific pending activities completed during the last two quarters were:

(1) Meeting of SLICE Council, Galveston, Texas, on October 15, 1974, during which significant decisions on this project were made.
(2) Presentation of general findings of the SLICE Project studies to SWLA membership during a half-day Institute at Galveston Conference, October 18, 1974.
(3) Continuation of cooperative activities with IUC/OCLC network developments and evaluation and observing the growth and implementation of the tie-in.
(4) Contracting with Dr. John Corbin for a "Syllabus and Guide for Continuing Education on Computer-based Data Processing for Libraries" based on the workshops in Arizona.
(5) Developing agreements with other states for presentation of similar workshops on library automation and networking during 1975 - based on this syllabus.
(6) Contracting with Dr. Julius Aronofsky and Dr. Robert Korfhage for a working paper on "Telecommunication in Library Network - A Five Year Projection".
(7) Contracting with Wm. Scholz for a working paper on "Models for Library Network Planning".
(8) Observing the networking developments in each of the six states as to trends and system designs emerging at the state levels.
(9) Monitoring national networking developments which will influence trends in the Southwest.

In addition to the above specific activities on the network project, the major activity of the last quarter has been to synthesize the findings of the last two years experiences into final recommendation of the "best" network for the Southwest.

Each of the above nine activities are discussed in further detail below:

(1) Meeting of SLICE Council, Galveston, October 15, 1974.

The Report of this meeting is attached as Appendix A. This was an important meeting in that the Council (1) took follow-up action on the current SLICE Project studies and (2) initiated action leading to a continuation of formal interstate networking developments. The specific action voted by the Council at this meeting is detailed in Appendix A.

Based on this action (and subsequent action taken at the SLICE Council meeting in Chicago on January 19, 1975) there is strong evidence of a continuing program in the Southwest pertaining to:

(a) following up on Harry Martin's recommendations regarding a federal/interstate compact.
(b) evolving a regional (multi-state) interlibrary loan code to enhance sharing of library resources.

(c) establishing a functioning Bibliographic Network and Resources Sharing Advisory Group within SWLA charged with the responsibilities of monitoring network planning and evaluation in the six state region and advising SLICE Council and SWLA Board on action needed. (Mr. Wm. Scholz was selected chairman of this advisory group at the January 19, meeting.) The first meeting of this advisory group is scheduled for June 30th in San Francisco in connection with ALA Conference.

(2) Presentation of General Findings of the SLICE Project Studies to the SWLA Membership on October 18, 1974.

In an afternoon Institute (in which approximately 350 persons from six states participated) the SLICE Project was reviewed. This review took the form of short (15 minute) presentations from each of the six states on the status of network development intrastate followed by a summary of a multistate overview.

A summary of this Institute is presented in Appendix B in the Vol. 23, No. 6, December, 1974, issue of SWLA Newsletter.

(3) Continuation of Cooperative Activities with IUC/OCLC Network Developments and Evaluation etc.

The SLICE Project assisted the IUC/OCLC Bibliographic Network Committee by contributing $1,000.00 toward the on-line demonstration at the SWLA Galveston Conference in October. Approximately 375 persons from six states viewed the demonstration during the four days.

In addition, a three hour time-slot on the Galveston Conference program was provided for IUC/OCLC to present their plan for expansion of the tie-in to other SWLA states and other Texas libraries. The SWLA Newsletter has carried updated information on the IUC/OCLC project as submitted by that staff.

The evaluation of the tie-in by Westat, Inc. was started on July 24, 1974. To date, basic data has been collected from 18 libraries for use in comparing costs and performance of manual or previous methods with the IUC/OCLC system. The evaluation will cover the period November 1, 1974, to June 1, 1975, and is in two phases. Phase I covers the public libraries (Dallas Public, Ft. Worth Public, Irving Public, and Irving Independent School District, and Texas State Library) during the three months of November, December, and January. In February a preliminary report will be issued on Phase I. Statistics collected for Phase I include acquisitions, cataloging, and production and technical processing uses of the system. Personnel time, work units performed, and cost data are included. The objective of this Phase of the evaluation is to compare the IUC/OCLC system with parallel manual system or with prior manual systems within each of the four libraries to determine if the IUC/OCLC system in cost beneficial within each library.

Phase II of the evaluation will be concerned with the college and university libraries in the IUC/OCLC tie-in and will follow the same methodology as used in Phase I.

(4) OCLC's pricing structure which does not provide state-level net cost-formula based on net use of the OCLC data base.

However, we are encourged by the positive and constructive progress being made by IUC towards improvement of the network and willingness to work with blocks of libraries in the other states in SWLA, such as Oklahoma, Arkansas, and New Mexico.

(4) Contracting With Dr. John Corbin for a "Syllabus and Guide for Continuing Education on Computer Based Data Processing for Libraries"

The three workshops on library automation and networking conducted in Arizona last spring by Dr. John Corbin and sponsored by the Arizona State Library were so successful that the SLICE Office felt other states would benefit from having access to the content. Thus, Dr. Corbin agree to prepare the "Syllabus and Guide for Continuing Education on Computer Based Data Processing for Libraries".

The manuscript (in camera ready copy) was received in the SLICE Office on January 15, 1975. This 99 page manuscript (with 39 illustrations) is an obvious labor of love. The title page, table of contents and select excerpts are presented in Appendix D.

This "Syllabus and Guide..." will be retained by the SWLA Office and be made available to participants in future automation workshops at cost of duplication.

We highly recommend it as a valuable learning tool to further basic understanding of some of the principles and issues in automation and networking.

Although no legal opinion has been sought, it is assumed that publication rights belong jointly to CLR, SWLA, and Dr. Corbin.

(5) Developing Agreements With Other States for Presentation of Workshops on Library Automation and Networking

As a result of the Arizona series of workshops, the Texas State Library has explored the possibility of co-sponsoring similar workshops with SWLA and the ten Major Resource Centers (MRC) in the state. A pilot workshop was conducted in September in Ft. Worth under the joint sponsorship of TSL, Ft. Worth Public Library, Ft. Worth MRC Board, and Tarrant County Community College District, and SLICE. Three other MRCs have responded favorably and Peggy O'Donnell, the new SLICE Office Director and CELS Coordinator, is working with Dr. Corbin in scheduling this series.

It is our experience that wise decisions regarding network systems or alternatives are impossible to make in the absence of knowledge of fundamental principles of computer technology, telecommunications, bibliographic record standards, and systems analysis. Thus, continuing education is necessary to support multi-state (or intrastate) networking. Hopefully, this educational component of network planning can be continued during 1975-1976 through the SWLA CELS Project.

On January 14, 1975, the IUC/OCLC Bibliographic Network Committee issued a memo announcing organizational changes in the network. A new organizational structure for network management was created and named Amigos Bibliographic Council (ABC). Excerpts from the January 14th memo and the position description of the Amigos Bibliographic Council Executive Director are enclosed (by permission) in Appendix C.

As of January 27, 1975, the ABC is anticipating the addition of 50 new institutions, five trunk lines to Ohio, 120 terminals, and an annual cash flow of $1,206,000.00 of which the cost are distributed:

Item	Annual Cost	% of Operating Costs
Line Costs	$ 197,000.00*	41.5
Terminal Maintence	64,000.00	13.5
Administrative	171,000.00	35.9
Contingencies	43,000.00	9.1
Total Operating costs	$ 476,000.00*	
Total Hit Costs	730,000.00	(flow-thru dollars to OCLC)
Total Cash Flow	$1,206,000.00	

On a per unit transaction basis, these costs are

Line costs	$0.29	
Terminal Maintence	0.09	
Administrative	0.25	
Contingencies	0.06	
Total local costs	$0.69	
OCLC charges	0.88	(flow thru dollars)
Total cost/hit	$1.57	

Terminal cost is not included in the above as most of the ABC members are purchasing terminals.

IUC/OCLC is beginning to function organizationally as a "network" through more frequent council meetings and more membership participation in decision making.

The SLICE Project staff is still concerned about:

(1) organizational structure supportive of a multi-state network (i.e., the need for a federal/interstate compact with state level funding and state-wide participation).
(2) high percent of operating costs going to line charges and to drop-line configuration and lack of concentration in the line design.
(3) OCLC's lack of authority files and MARC II regional format.

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* This calculates to be $1,641.00 per terminal per year for line costs and $3,966.00 per terminal per year for operating costs. These are "fixed" costs independent of terminal activity.

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(6) Contracting with Dr. Aronofsky and Dr. Korfhage for a Working Paper on "Telecommunications in Library Networks".

Preliminary analysis of network components indicated several critial concerns, namely:

(a) bibliographic record standards
(b) data base organization, content and authority files
(c) network services
(d) telecommunication links
(e) hardware and software specifications
(f) legal and fiscal policies

A search of the literature and discussion with network planners indicated there was a lack of definitive information on telecommunication aspects of and alternatives for library networks.

SLICE initially offerred to fund a study of the telecommunication requirements of the IUC/OCLC present and expanded network. After a series of meetings with IUC, it became obvious that the telecommunication options for that network were limited by OCLC policy and practice. Factual studies of alternatives - such as modelling of different configurations and types of links - was not thought to be of any value to the IUC/OCLC network planners - even though 41.5% of the fixed operating costs were attributed to line costs.

Discussions with various members of the SLICE Council indicated a need for a background working paper on telecommunications in library networks with projection on future developments in the next five years. Thus, SLICE contracted with Dr. Julius Aronofsky and Dr. Robert Korfhage (two recognized authorities in the field of computers, telecommunications and data networks) to undertake such a study and prepare a working paper.

The working paper is enclosed as Appendix E and should be of value to any network planner desiring to reduce line costs and maximize network efficiency.

It is urged that serious attention be given to the Aronofsky-Korfhage paper. The issues contained therein are definitive and pertain to the future of regional network organizational structure, services, costs, and efficiencies. Based on this paper, it is anticipated that within the next two years major changes will be necessary - and desirable - in the present generation of library networks. It behooves any library network organization - or group of libraries anticipating joining a network - to understand these issues and to negotiate for the optimal telecommunication system.

(7) Contracting With Wm. Scholz For A Working Paper on "Models For Library Network Planning"

The problem of planning an optimal library network for the SWLA/SLICE region involves the evaluation of various alternatives which will satisfy the needs of the patrons served by the member libraries. Network planning, to fulfill its purpose, must proceed in a logical, orderly fashion - each part relating to each other. The use of models provides a means of demonstrating and manipulating the variables involved in such network planning.

Resource sharing, inter-library communication, and technical services standards, including compatibility of records, quality of bibliographic data and records, and cost must be considered by network planners. Modeling, as a key to planning, can provide information in the format required for informed decision-making. Models can also serve as a means of evaluating networks and systems in terms of function, cost-effectiveness, availability of materials, etc.

In his paper Mr. Scholz reviews types of models and the techniques of using them in network planning. Since little work has been done in standardized modeling, network planners must expend their efforts in developing and expanding these useful tools to facilitate their work and to provide more reliable bases for decisions.

(8) Observing the Networking Developments in Each of the Six States As to Trends and System Designs Emerging at the State Level

One of the guiding principles the SLICE Project has attempted to follow is the principle of state-based building blocks for multi-state networking. The converse of this principle would be a network of individual institutions - at random - from several states. If this principle is valid, then state-level networking developments become key factors in building a multi-state network. Throughout the SLICE Project the planning has evolved from the state-level to multi-state and then back to state-level in an iterative, heuristic mode.

This state-based principle was contrary to the initial "modus operandi" of the IUC/OCLC tie-in and was not encouraged by OCLC. Apparantly the basic strategy of OCLC has historically been to sign-up a few key academic in a state without concern for the divisive impact on state-level library development and cooperation. Certainly, from OCLC's perspective this strategy has short-term merits. But, for the total good of library resource sharing and intrastate cooperation, the OCLC strategy has to be questioned.

The SLICE Project has historically followed the concept that the maximum benefits from a computer based network can best be achieved by developing an intrastate plan for networking of all libraries in a state and then interconnecting the state based systems into a multi-state network design. Thus, the status of network development (or pre-development) in each state has been an indicator of needs, progress, problems, and "state-of-readiness" for multi-state networking.

In summary of these state-level developments, the last two years have brought about dramatic changes in some states and have pinpointed problems in other states. Each state should be contacted for further details and for the complete story.

A generalized summary and conclusion from this overview of state level network developments is as follows:

1. Each state varies in readiness to participate in a multi-state network.
2. Those states which have strong state library leadership (supported by the library community) are further along in intra-state, interlibrary network planning and implementation.
3. The availability of IUC/OCLC and SOLINET have caused the states - or individual institutions - to make early decisions on network commitments. This "band wagon" effect has been turned into motivation for state level planning in some states. In other states the individual institution level of network participation continues to prevail.
4. Some institutions in some states are under a great deal of pressure from high level persons "to make the IUC/OCLC network look good - or else!"
5. The strength and viability of the SLICE Advisory Council will be a determing factor in any future multi-state library development and coordination in the Southwest.
6. State level funding is (or will be) required to maintain IUC/OCLC network viability. This will be particularly true as LSCA Title IV funds phase-out. Apparently only one state (Arkansas) has prepared legislation to obtain state funding for this specific purpose.
7. SWLA (or the SLICE Project) does not have the legal base, the funds, nor the "clout" to function as an Interstate Library Development Agency. It can function as an arena for discussion and education and to stimulate action. In the absence of a legally created interstate agency (either by interstate compact or federal legislation) the state will continue to be the site of planning, funding, and coordinating networking and interlibrary cooperation - unless it abdicates that role to external networks such as OCLC.
8. Only one state has evolved criteria for network selection and developments. The other states have been caught-up in having to make quick decisions on participation in IUC/OCLC (or SOLINET) due to external pressures.
9. New federal legislation or national programming is urgently needed to prevent fragementation, to define network boundaries, to establish network standards, and to permit the creation of interstate bibliographic networks as a "public utility" cooperatively funded by federal and state appropriations and by user fees.

(9) Monitoring National Networking Developments Which Will Influence Trends in the Southwest

Although this task is vital to multi-state planning, it has been difficult to keep informed of the fast-moving national developments. The project staff has not found any one source of reliable current information on network developments at the national level. Apparently, the national level developments are relatively autonomous and still fragmented and somewhat competitive. The work of NCLIS and CLR to coordinate the various national networking components has been helpful as has L.C.'s publishing of these activities in Information Bulletin. ALA's Journal of Library Automation has become increasingly more useful as a source of information. In spite of these efforts, however, it has been most difficult to get valid, factual information

on CONSER, OCLC plans, SOLINET's status, status of bibliographic records standardization, federal legislative intent, or results of various on-going experiements such as Fed-Net etc.

Perhaps the SLICE Project staff has not worked diligently enough on establishing these communication channels. Regardless of the reason for not being better informed, the fact remains that decision making is frequently done either in a vacuum of facts or based on rumor. This is not a good climate for intelligent decision making. If the SLICE Office "dried up its sources" because of lack of prudence in the use of information, then certainly a change in strategy is in order. However, discussions with other agencies involved in network planning indicate they are experiencing the same difficulties in keeping informed.

A sclution to this problem is not immediately obvious - but some solution is needed if intelligent informed decisions on network planning and selection is to be achieved. Certainly, state or regional (multi-state) networks should be planned to interface and integrate with national network planning and legislation. How this can be achieved in the absence of specific factual information about national network planning is not clear.

III. Project 2: Continuing Education for Library Staffs in the Southwest (CELS)

Since November 1st, 1974, Ms. Peggy O'Donnell has assumed responsibility for this project.

Her report to the SLICE Advisory Council on January 19, 1975 summarizes the activities or the CELS project for the last quarter. It is enclosed as Appendix H.

Included in Appendix H is the Foreword to the Martin/Duggan report written by Ms. O'Donnell. It provides an update of information and outlines progress in implementing the survey and recommendations.

The first issue of "CELS Update" is also part of Appendix H. It will appear from time to time to keep the SWLA Continuing Education Interest Group and others in the region active in continuing education informed of the activities of the CELS Project. Reporting and evaluating forms for future and current continuing education programs were mailed with the first "Update."

IV. Evaluation

Throughout the two year project, the staff has continuously attempted to evaluate the progress being made and the benefits of the project to the participating states and to the total library community.

Theoretically, one evaluation model would be to check the project's accomplishments against the initial goals identified in the proposal which was funded by CLR. These goals (copied from the proposal) were:

"Specific Aims

During the next two years, the SLICE Project will work toward the development of a systematic regional plan for increasing and stimulating the sharing of library resources, services and expertise among all types of libraries in the six SWLA states (Arizona, Arkansas, Louisiana, New Mexico, Oklahoma, and Texas).

Design requirements and cost data will be developed for various alternative types of regional bibliographic networks.

Particular emphasis will be placed on developing a systematic, modular plan for maximizing the use of MARC records in an interstate network configuration designed to best serve the SWLA region.

In the same manner, state-based inter-library loan networks in the region will be reviewed and compared with the intent of developing a plan for regional inter-library loan network compatible with the bibliographic network.

Since adoption and use of new systems requires acceptance by librarians, "participatory planning" is necessary for successful implementation of any regional plan. Through a series of Planning Comferences and Working Papers, the key librarians in the region will be invited and encouraged to participate in the planning process.

In like manner, implementation of a plan is not possible without the support of top administration. Meetings will be arranged with regents, governors, school administrators - at the state level - to share the planning data and to seek their assistance in implementation. If appropriate and necessary, legislation required for organizational and financial support of the regional network will be proposed.

An additional specific aim of the two year project is to objectively determine the need for and function of a possible "interstate regional library development agency". Financial, legal, and organizational aspects of such a regional agency will be reviewed and analyzed. Developments in other interstate regions and national trends in regional structure and planning will be considered. Recommendations will be made regarding the future developments of the SLICE Project Office or other organizational alternatives (such as a Federation of States or an Interstate Library Compact)."

Trying to be totally objective, the project staff believes the following Accomplishments and Failures represent a valid expression of how well these goals were achieved.

Accomplishments

During the past two years, the SLICE Project has directly - or indirectly - accomplished the following:

1. Strengthened an organization - the SLICE Advisory Council - which addresses interstate library development.

2. Established the concept and identity of a multi-state library development function and role which will be considered by NCLIS for the national program.

3. Originated a definitive working paper[1] on the legal and organizational aspects of multi-state library agency. This paper is being used by NCLIS and USOE in their legislative planning.

4. Originated a definitive working paper[2] on telecommunications in library networking.

5. Originated a working paper[4] on models for network planning which should assist states or individual institutions in making decisions regarding network activities.

6. Originated a training program with Syllabus and Guide[3] on library automation as related to networking.

7. Presented (jointly with ALA/ISAD) the first national institute on alternatives in bibliographic networking which identified and discussed key issues.

8. Stimulated in five of the six SWLA states intra-state network planning leading to multi-state planning.

9. Created an atmosphere of discussion and, hopefully, objective analysis of network alternatives and planning within the six state region.

10. Attempted to work cooperatively with IUC/OCLC to encourage orderly state-based expansion and to quantatively evaluate the cost/benefits of the tie-in.

11. Stimulated the development of the numeric record system (in four states) as an interim step toward state-based networking which could readily interface with a multi-state system.

12. Assisted in the development of a multi-state plan for continuing education for library staffs (CELS) and helped to implement the first four steps of the plan.

---

(1) Harry Martin's paper entitled "Legal Aspects of Establishing a Regional Interstate Library Network in the Southwest".

(2) Julius Aronofsky and Robert Korfhage's paper entitled "Telecommunication in Library Networks: A Five Year Projection".

(3) John Corbin's Syllabus "Introduction to Computer-based Data Processing For Libraries: A Syllabus and Guide For Continuing Education".

(4) Wm. Scholz's paper entitled "Models for Planning and Implementating Library Networks

13. Assisted in re-juvenating SWLA as a regional library association and, hopefully, helped to provide a sound basis for its continuing viability.

14. Collected and documented data on funding, staffing, communications, etc. of an experimental multi-state library development agency.

Failures

The SLICE Office Director is aware of the areas in which the project failed to achieve the goals initially established for the two year activity. The major failures relate to:

1. Inability to develop a firm legal basis for a permanent multi-state library planning agency supported by state and federal funds.

2. Inability to defer institutional commitments to the one available network (OCLC) pending development of a rational, quantitively-based plan for multi-state networking which was supported by all six states.

3. Inability to gain acceptance by IUC/OCLC planners of the rationale for state-based network expansion, revised funding/cost formula, and modified telecommunication design.

4. Inability to coalesce the separate libraries of the University of Texas system into a system-wide approach to network planning which could have served as the basis for a Southwestern network.

Thus, some progress and concrete accomplishments have been made in the two years. But, some of the key tasks basic to a meaningful multi-state network and library development agency were not accomplished. It is hoped that the positive accomplishments of the project will provide development criteria for those involved in network planning and resource sharing. The "failures" represent the challenges to those regional planners who are moving forward toward the actuality of a regional, inter-state, inter-library network in the Southwest.

V. Financial Report

The status of the SLICE Project account as of December 31, 1974, is documented on the enclosed table. These are these are the expenditures that have been processed by the UTHSC grant accounting system as of December 31, 1974.

On November 27, 1974, permission was requested of CLR to extend the grant period by 30 days (to February 1, 1975) in order to allow for completion of two working papers and the final report. Permission was so given in Mrs. Lesser's letter of December 4th to Mr. Brawner. Thus, the final record of expenditures will not be available officially from the UTHSC grants accounting office until the computer print-out covering January is available (about February 21st). However, our unofficial accounting records show the encumbrances (or expenditures) for the month of January which should be subtracted from the balance as of December 31st. These are summarized on the record enclosed.

The CLR Financial Report and the required attachments are enclosed.

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SUMMARY OF SLICE COMPOSITE BUDGET AND EXPENDITURES FOR JANUARY 1, 1974 THRU DECEMBER 31, 1974

Item	Initial* Budget	First Quarter Expenditures	Second Quarter Expenditures	Third Quarter Expenditures	Oct. Expenditure	Nov. Expenditure	Dec. Expenditure	Fourth Quarter Expenditure	Total Expenditure Jan. 1 thru Dec. 31
Salaries	$15,830.00	$5,688.28	$4,251.76	$3,139.13	$ 792.57	$ 792.57	$ 792.57	$ 2,377.71	$15,456.88
Emp. Benefits	1,135.00	408.81	299.64	221.06	54.58	54.58	53.84	163.00	1,092.51
Consultant	13,208.00**	428.40	1,729.52	1,489.66	1,031.88	1,271.10	4,967.24	7,270.22	10,917.80
Supplies	1,285.00	387.48	699.07	149.52	-	155.74	-	155.74	1,391.81
Printing	4,100.00	301.68	760.81	1,511.03	3.00	-	172.31	175.31	2,748.83
Data Proc. & Telephone	1,800.00	263.39	944.10	273.09	197.10	-	56.05	253.15	1,733.93
Travel	1,700.00	759.05	248.59	269.69	19.65	234.42	-	254.07	1,531.40
Equipment	-	-	-	-	-	-	-	-	-
Indirect Cost***	3,124.00	658.97	714.67	519.41	167.66	200.67	483.36	851.69	2,744.74
Totals	$42,182.00	$8,896.06	$9,648.16	$7,572.79	$2,263.44	$2,709.07	$6,525.37	$11,500.89	$37,617.90

* As revised permission from Council on Library Resources, May 13, 1974.

** Of this, approximately $3,500.00 is to be used toward funding the new CELS Coordinator position.

*** Calculated at 8% of total direct cost.

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ATTACHMENT TO FINANCIAL REPORT FOR CLR NO. 559
JULY 1, 1974 TO SEPTEMBER 30, 1974

A. Salaries, Wages, and Employee Benefits

	Third Quarter
Miss Maryann Duggan, SLICE Office Director	$2,048.24
Mrs. Beverly Sweeney, SLICE Office Secretary (62.5% F.T.E. on project beginning 11/12/72 at net annual salary of $4,312.92)	1,090.89
Employee Benefits (Duggan and Sweeney combined)	
OASI	183.63
Workman's Compensation Insurance	8.63
Unemployment Insurance	2.18
Premium Sharing	26.62
Total Salaries, Wages, & Employee Benefits	$3,360.19

B. Consultant Fees

Miss Peggy O'Donnell - Consultation and travel expense related to developing continuing education package in Dallas, July 25 to July 27, 1974.	$ 314.66
Mr. H. S. Martin - Consultant fee for preparation of a definitive legal document pertaining to a multi-state network organization	1,175.00

C. Travel

Inclusive Dates	Destination, City, & Institution	Round Trip Mileage		Transp.	Living	Total	Acct. Charged
7-7-74/7-13-74	New York, New York	3,132	To participate in American Library Association Conference	$234.27	$35.42	$269.69	N59452-5(303)
			TOTALS	$234.27	$35.42	$269.69	

D. Other Costs

Long Distance Telephone Charges for Third Quarter = $205.26

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ATTACHMENT TO FINANCIAL REPORT FOR CLR NO. 559
OCTOBER 1, 1974 TO DECEMBER 31, 1974

	Fourth Quarter
A. Salaries, Wages, and Employee Benefits	
Miss Maryann Duggan, SLICE Office Director (25% F.T.E. on project at annual salary of $19,530. Work on project started 10/1/74)	$1,261.98
Mrs. Beverly Sweenwy, SLICE Office Secretary (62.5% F.T.E. on project beginning 11/12/73 at net annual salary of $4,312.92)	1,115.73
Employee Benefits (Duggan and Sweeney combined)	
OASI	139.11
Workman's Compensation Insurance	8.31
Unemployment Insurance	1.47
Premium Sharing	14.10
Total Salaries, Wages, & Employee Benefits	$2,540.70
B. Consultant Fees	
Miss Peggy O'Donnell - Consultation and travel expense related to developing continuing education package in Dallas, 9-21-74 through 9-28-74.	$ 842.98
Marjorie Atkinson - Travel expenses related to Network Workshop in Ft. Worth 9-22-74 through 9-24-74.	121.16
Ann Bowden - Travel expenses related to Network Workshop in Ft. Worth 9-22-74 through 9-24-74.	86.01
Margaret Mathis - Travel expenses related to Network Workshop in Ft. Worth 9-22-74 through 9-24-74.	138.18
John Corbin - Consultation fee and expenses in connection with Network Workshop in Ft. Worth held on 9-22-74 through 9-24-74.	188.90
John Allen - Consultation fee and travel expense related to participation in SWLA Conference held in Galveston, Texas on 10-13-74 through 10-18-74	145.78
Miss Peggy O'Donnell - Consultation and travel expense related to developing continuing education package in Dallas, 10-15-74 through 10-31-74.	779.97
Miss Peggy O'Donnell - Consultation and travel expense related to developing continuing education package in Dallas, 11-1-74 through 11-15-74.	771.37
Julius Aronofsky - Preparation of a working paper on telecommunication as related to Bibliographic Networking.	1,200.00
Robert Korfhage - Preparation of a working paper on telecommunication as related to Bibliographic Networking.	1,200.00
Miss Peggy O'Donnell - Consultation and travel expense related to developing continuing education package in Dallas, 11-15-74 through 11-30-74.	795.87

C. Travel

Inclusive Dates	Destination, City, & Institution	Round Trip Mileage	Purpose	Transp.	Living	Total	Acct. Charged
9-26-74/9-27-74	Ft. Worth, Texas	241.6	To participate in Network Workshop given in Ft. Worth, Texas.	$ 28.99	$ 14.65	$ 43.64	N59452-5 (302)
9-26-74/9-27-74	Tucson, Arizona	1834.0	Planning meeting with Arizona Library Association.	9.10	10.55	19.65	N59452-5 (303)
10-13-74/10-18-74	Galveston, Texas	676.8	To participate in SWLA Conference and present a paper.	93.88	108.90	190.78	N59452-5 (302)
			TOTALS	$131.97	$134.10	$254.07	

D. Other Costs

Long Distance Telephone Charges for Third Quarter = $250.15

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Summary of January 1975 Expenditures and Estimated Final Total Expenditure and Balance on Composite Budget For Second Year of Grant

Item	Initial Budget	Expenditures Thru 12/31/74	Balance as of 12/31/75	Estimated Jan. Expenditures	Estimated Total Expenditures	Difference From Budget
Salaries	$15,830.00	$15,456.88	$ 373.12	$ 371.91	$15,828.79	$ 1.21
Emp. Benefits	1,135.00	1,092.51	42.49	28.57	1,121.08	13.92
Consultants	13,208.00	10,917.80	2,290.20	2,200.74	13.118.54	89.46
Supplies	1,285.00	1,391.81	-106.81	256.67	1,648.48	-363.48
Printing	4,100.00	2,748.33	1,351.67	850.00	3,598.33	501.67
Data Proc. & Telephone	1,800.00	1,733.93	66.07	130.00	1,863.93	- 63.93
Travel	1,700.00	1,531.40	168.60	-	1,531.40	168.60
Equipment	-	-	-	-	-	-
Indirect Costs	3,124.00	2,744.74	379.26	309.55	3,054.29	69.71
TOTALS	$42,182.00	$37,617.40		$4,147.44	$41,764.84	417.16

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COUNCIL ON LIBRARY RESOURCES, INC.

ONE DUPONT CIRCLE, N.W.
WASHINGTON, D.C. 20036

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Telephone 202-296-4757

FINANCIAL REPORT

CLR No. 559

Name and address of submitting institution: Southwestern Library Association, Inc.
The SLICE Office, Florence Bioinformation Center, Room E5.202
5323 Harry Hines, Dallas, Texas 75235

Submitted by: Lee B. Brawner
(Signature of responsible financial officer)
Mr. Lee B. Brawner, Chairman SLICE Executive Committee
(Name & Title - Please type)

Name of Project: Further Development of the SLICE Project of the Southwestern Library Association, Inc

Nature of Report: Interim [ ] Final [xx] (Please check)

From (Starting date of Project): January 1, 1973 To December 31, 1974

EXPENSE ITEMS	Total Approved Budget (1) *	Expenditures Since Last Report (2) **	Total Expenditures to Date (3)	Balance Available (Col. 1 - Col. 3) (4)
A. Salaries, wages, & employee benefits	$37,794.02	$ 5,900.90	$37,932.33	-0-
B. Consultant fees	8,651.56	8,759.88	12,241.05	-0-
C. Travel	2,612.00	523.76	4,202.23	-0-
D. Supplies & materials	142.42	305.26	2,314.02	-0-
E. Printing & duplication	600.00	1,686.34	4,846.05	-0-
F. Equipment	-	-	-	-
G. Other costs	200.00	526.44	2,779.26	-0-
TOTAL COSTS	50,000.00	17,702.58	64,314.94	-0-

Total Grant $50,000.00 less receipts to date $40,600.00 balance available $9,400.00

* As revised with CLR permission on May 13, 1974.
** Third and Fourth Quarter of 1974
INSTRUCTIONS ON REVERSE SIDE

APPENDIX

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Appendix		Title
A	...	"Report of Meeting of SLICE Council, October 15, 1974, Galveston, Texas."
B	...	SWLA Newsletter, Vol. 23, No. 6, December, 1974.
C	...	Excerpts from the IUC/OCLC Network Expansion Proposal.
D	...	Dr. John Corbin's "Introduction to Computer-based Data Processing for Libraries: A Syllabus and Guide for Continuing Education" - excerpts.
E	...	Dr. Julius Aronofsky and Dr. Robert Korfhage's Working Paper "Telecommunication in Library Networks: A Five Year Projection."
F	...	Wm. Scholz's Working Paper "Models For Library Network Planning."
G	...	CELS Project Report
H	...	Distribution Record of This Report

APPENDIX A

Report of Meeting of SLICE Council,
October 15, 1974, Galveston, Texas

With Financial Status Reports
and Projected CELS Project Budget

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Report of Meeting
SLICE Council
October 15, 1974
Terrace Room
Galvez Hotel
Galveston, Texas

Those present:

Marquerite Cooley, State Library, Arizona
Jan Kee, Consultant, U.S.O.E., Region II, Dallas, Texas
Vivian Cazayoux, State Library, Louisiana
Bill Gooch, State Library, Texas
Heartsill Young, SWLA President-elect
Freddy Schader, State Library, Arkansas
Frances Neal, State Library, Arkansas
Alice Gray, State Library Association, Arkansas
Christine Buder, State Library Association, New Mexico
Esta Lee Albright, State Library, New Mexico
John Anderson, Chairman, SWLA CELS Interest Group
Sam Dyson, State Library Association, Louisiana
Chris Thomas, Executive Secretary, State Library Association, Louisiana
Jean Ballintine, State Library Association, Louisiana
Jim Wilkerson, State Library Association, Oklahoma
Phyllis Maggeroli, Project Director, SWLA-NEH Project
Peggy O'Donnell, SWLA CELS Coordinator/SLICE Director
Patricia Read, Secretary, SWLA NEH-Project
Lee Brawner, Chairman, SLICE Council
Maryann Duggan, SLICE Office Director
Marion Mitchell, SWLA Executive Secretary
Pat Smith, SWLA Newsletter Editor
Frank Bertalan, Member SLICE/CELS Advisory Group
Frances Kennedy, Executive Secretary, State Library Association, Oklahoma
Mary D. Lankford, State Library Association, Texas
Don Foos, Chairman, SLICE/CELS Advisory Group

The SLICE Council was called to order at 9:00 a.m. by Chairman Lee Brawner in the Terrace Room of the Galvez Hotel.

The attendees introduced themselves and identified their affiliation with the Council.

Mr. Brawner called the delegates' attention to the report from the previous Council meeting October 4, 1973, which had been distributed and was included in the recently-issued dual quarterly SLICE Office Report.

Two financial reports and an estimated budget were presented by the Chairman. Mr. Brawner reviewed the SWLA Financial Status Report (Attachment A) for the SLICE Two Year Project, the Council on Library Resources funded project for the study of the feasibility of a bibliographic network for the region, which

will terminate December 31, 1974. He also presented the financial report of the SLICE/CELS Project for the 1975-1976 biennium (Attachment B) and an Estimated Budget for the SLICE/CELS Project for the period through July, 1976. He called attention to the fact that by combining resources, reducing office costs, and utilizing funds freed by the phasing out process of the previous SLICE Office Director (Maryann Duggan) the SLICE/CELS Project could possibly be assured funding a period of 21 months instead of the original projection of from 15-18 months. The Chairman reported that the SLICE/CELS Project will continue the existing SLICE Office regional objectives with an emphasis on developing, coordinating and expanding continuing education opportunities for the staffs of libraries in the Southwest. Funding for this Project comes primarily from the six state library agencies in the Southwest which are providing funds in the amount of 5% of their respective FFY 73 and 74 LSCA Title III funds. Additional funds are anticipated from SWLA, the respective state library associations and from the continuing education products, themselves.

Mr. Brawner introduced Peggy O'Donnell, who will assume the post of CELS Coordinator full-time November 1, 1974.

Mr. Brawner asked Miss Duggan to review the status of the Bibliographic Networking Project including the current arrangements for the SLICE Office. After explaining the present housing arrangements for the SLICE/SWLA offices, Maryann outlined the following:

1. The Project was funded by CLR and six state library agencies to study bibliographic networking for the six Southwestern States. The study has been underway for 20 months.

2. Major categories emerging from the Project:

   A. Review of a legal basis for a multi-state network. Harry Martin, Assoc. Law Libn., University of Texas, report is included in the latest SLICE Office Report.

   B. Study Network data bases. SLICE has letter of agreement with Bill Scholz of New Mexico State Library for paper on network data bases, highlights of which will be presented by Bibliographic Network Institute at the SWLA Conference.

   C. Look at all alternatives for best network for the Southwest. This resulted in pooling funds with ISAD for joint institute in New Orleans in March, 1974. Proceedings of that institute also in most recent SLICE Report.

   D. Observe and monitor the IUC-OCLC tie-in to give "real world" experience to evaluate bibliographic networking capability in Southwest. The SLICE Office Director has been named the official liason with the IUC-OCLC group.

   E. Look at the telecommunications grid that would be optimal for computer-based bibliographic networking in the six states. Attention was called to the fact that approximately 80% of the OCLC tie-in costs were telecommunications cost. There is a

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need to look at an optimal telecommunication grid. SLICE is negotiating with Dr. Julius Aronofsky at SMU who is working with Dr. Robert Korfage, both networking specialists, for a working paper on such an optimal grid for the Southwest.

F. All will be pulled together in final report for the Council on Library Resources in January, 1975. As an interim step, the Bibliographic Network Institute at the SWLA Conference will synthesize the work to this point and consider possible configurations for the SWLA Region.

Maryann also reported that Dr. John Corbin is developing a 21 hour training program on library automation and networking as part of the current SLICE Project. He is packaging the program for SWLA. A syllabus and set of slides will be prepared for use in the CELS Project. This program has been presented in Arizona and Texas.

Mr. Brawner asked Maryann to present to the Council some of her thinking on the final recommendations on the development of a bibliographic network in the Southwest. She stated initially that she had not formulated final recommendations, that the SLICE Council was to assist her in coming to her final decision by helping to develop criteria for establishing an ideal network for the Southwest. Maryann called bibliographic networking a blessing and a curse for libraries. The decisions made within the next two years will affect library service throughout the U. S. for years to come because those decisions will involve:

1. millions of dollars
2. the need to critically evaluate vendors
3. a national-level discussion concerning the format of the bibliographic record. Full MARC record or condensed versions - which is optimal?

These issues are addressed in the proceedings of the ISAD Institute in the latest SLICE Report.

Mr. Brawner interjected that SLICE had cleared with CLR its approval of the ongoing SLICE Project reports and studies. CLR has assured SLICE of its continued support for SLICE to carry out its project and present the facts in an objective manner letting the facts speak for themselves.

Maryann cited some criteria she feels are essential to consider before a network system is adopted. She asked for Council reaction since the SLICE Council is an advisory body to the Project and the time for writing the final report is at hand. The criteria to be considered are:

1. The organizational base for a multi-state network should be the state. This would mean that a majority of libraries in a given state would agree to go together into the same network to build, within the state, a bibliographic data base of holdings of all types of libraries in that state. (Sam Dyson agreed in principle but stated that his university could get a better deal from OCLC.)

2. The fragmentation taking place at the state level caused by academic libraries joining OCLC and pulling out of state networks. Implication of this is that it affects the orderly resource development within the state; it affects state resource planning and interlibrary loan.

   Maryann urged stronger leadership at the state level by funding through LSCA state network planning and evaluation. The decision to be made is not a simplistic one. Maryann will include in the final report the recommendation that a network be state based unless SLICE Council objects.

3. The need for a federal interstate compact as the organizational legal base for a multi-state bibliographic network. No network as yet has this basis.

   Maryann asked the reaction of the Council on this point since this will be her recommendation in the final report.

4. What is optimal configuration of network? Looking at the data now available, Maryann stated that the SWLA region would be split down the middle. Jan Kee pointed out that what Maryann was implicitly recognizing are the existing legal based entities which have federal legislation ensuring their existence, the staff, and the clout to make a network viable.

John Anderson raised the question of whether with a computer-based network the state is still viable as the basic component of a network. Maryann agreed to the need for justification of the recommendation that the state be the basic component. She cited the U.S. Constitution provision for the basic building blocks of the national political structure being the states. The flow of funding for the national structure is from the national level to the state level. This is the model for the network she envisions which would serve all libraries within a state.

On the matter of exploring the drawing of a model interstate compact (and a possible grant for this purpose), Maryann reported on a letter from CLR in response to a query from her on this subject. CLR recognizes the need for a legal base for any interstate network and recognizes the need for planning and for drawing of a model compact. However, their legal advisors feel it would be unwise for CLR or SWLA to jeopardize their tax-exempt status by funding the study and development of such a model.

Jan Kee suggested approaching the Council of State Governments with the proposal for developing a model federal-interstate compact. Lee Brawner suggested also approaching the National Commission to ask their help in developing a model.

Mr. Brawner asked the Council if the development of a model compact should continue to be a goal of SLICE and continue in the work program. Jan Kee asked if SLICE would be reaching its goal if it channeled the Harry Martin report to an agency or agencies which would properly implement the report's recommendations.

A discussion ensued which explored whether the SLICE Project was interested solely in laying the groundwork for the development of a bibliographic net-

work for the six Southwestern states or whether the interest was broader, encompassing regional interstate networks in general.

Lee Brawner asked Jan Kee to draft a statement for the SLICE Council to consider which delineates the Council's current interest in developing a bibliographic data base for the region which would serve as a continuing goal for SLICE.

Further discussion was held to obtain the views of the Council on recommended record format. Maryann asked that the following considerations be addressed:

1. input to data base from members be so identified.

2. the system should accept and generate full MARC records or, minimally, the records must be interchangeable with other MARC based systems.

3. there must be control over organizational structure (legal basis) so members have some control over supply of data.

Other consideration for the Council raised by Maryann were:

1. There must be equity of access to the data base so that all libraries within a state can pull records generated within the state at no cost to the individual institution.

2. There is a need for a mathematical model of impact of differing price structures for a state so that negotiation can be for what is optimal for state rather than individual institution.

3. There is a need to develop as a first step a state-based bibliographic data base. If you do go to an out-of-state data base, negotiate the contract at the state level for entire state.

4. The Council may need to decide whether an interstate-interlibrary loan code is desirable for the region. Vivian Cazayoux noted that a code or policy is necessary to make the exchange of state numerical records useful. Christine Buder cautioned on getting too many different interlibrary loan codes in the area.

At the end of the discussion Lee Brawner suggested moving on in the agenda to the election of officers of the SLICE Council for the next biennium and then proceeding to consideration of recommendations from the Council to the SWLA Board.

The Chairman named Frances Neal to chair the group representing state agencies to select a state agency delegate to serve on the SLICE Executive Committee. James Wilkerson was named to chair the group representing state library association to select a state library association delegate to serve on the Executive Committee.

Lee Brawner reminded the Council that the SLICE Council Chairman also serves as chairman of the Executive Committee.

The Chairman also pointed out that the proposed, new SWLA Constitution and By-Laws provide for the newly-elected officers to assume office at the end of the conference, rather than January 1. He suggested that SLICE Council might wish to be in accordance with the new Constitution. The Council agreed to follow the provisos of the new SWLA Constitution if adopted by the SWLA membership.

He then called for the report of Nominating Committee of one, Marquerite Cooley.

Mrs. Cooley's report placed the name of Bill Gooch in nomination for Chairman of the SLICE Council for the next term of office. There were no additional nominations. Bill Gooch was elected Chairman of the Council for the 1975-76 biennium.

Frances Neal reported that the state library agency representatives had selected Esta Lee Albright of the New Mexico State Library to serve on the SLICE Executive Committee.

James Wilkerson was selected by the state library associations to serve on the SLICE Executive Committee.

Don Foos suggested and Vivian Cazayoux moved that Peggy O'Donnell be made a member of the SLICE Council. It was seconded by Marguerite Cooley. The motion passed.

Jan Kee presented the statement requested by the Chairman erlier:

> Goal for SLICE for the 1975-76 Biennium: To proceed with the orderly review of alternatives for a regional (interstate) bibliographic data base (using the six states in the Southwestern Library Association as the basis for determining the boundaries of the region) and, for the purpose of sharing resources, to work toward an interstate-interlibrary loan policy consistent with national developments.

Bill Gooch moved and Heartsill Young seconded that the SLICE Council adopt the statement as a goal for SLICE for the next biennium. The motion passed with one negative vote.

Vivian Cazayoux moved that the SLICE Council take action on the Harry Martin report by:

1. widely distributing the report

2. securing endorsement of it by such groups as NCLIS, the ALA Legislative Committee, SELA, SOLINET, and

3. submitting it and the endorsements to the Council of State Governments with the urgent recommendation from the SLICE Council that they see the need for legislation in this area and begin immediate action to secure such legislation.

The motion was seconded by Frances Neal. The motion carried.

The SLICE Council was urged by Jan Kee to seek publication of the Harry Martin report, possibly by the University of Texas, for the widest possible distribu-

tion. She cited the urgent need for information in this area as well as the excellence of the report and its documentation.

A discussion was held to determine the best way to continue SLICE activity in the field of bibliographic networking to facilitate the implementation of Maryann's project recommendations and to carry out the goal for SLICE earlier in the meeting.

Esta Lee Albright moved that the SLICE Council appoint a Bibliographic Networking and Resource Sharing Task Force composed of representatives of the six states selected by each of the bodies represented on the SLICE Council (state library agencies, state library associations) to implement the goal adopted by SLICE. The motion was seconded by James Wilkerson. The motion carried.

Don Foos recommended that the state representatives consult with the ASIS representatives in their states before making appointments to the Task Force. It was also recommended that each state submit up to three names of individuals chosen by the state library agencies and the state library association with expertise in bibliographic networking to the Chairman of the SLICE Council within three months. The individuals recommended should be contacted and agree to serve on the Task Force.

The Chairman asked the Council's permission to authorize the Chairman of the SLICE Executive Committee to appoint the Chairman of the Task Force from the names submitted. The Council concurred with the request.

Don Foos suggested that the Task Force consider submitting a proposal for a HEA Title IIB institute to be held at a university in the region. Mr. Brawner said he would ask the new Council to pursue that suggestion.

Mr. Brawner again called attention to the projected 1975-76 budget for the SLICE/CELS Project. He said that continuance of the project office operations through July 31, 1976, was dependent on the balance of funds from the current Two-Year CLR Project Grant. Final costs for the CLR Grant Project are not known at this time. Funding for the SLICE/CELS Project will, he said, definitely exceed the initial 18 month period of time and should carry the project close to 22 months.

The Council formally bade goodbye to Maryann Duggan and Lee Brawner since this was their last SLICE Council meeting. They were thanked for their tireless efforts in behalf of the Project. All good wishes go with them for their endeavors in the future.

The meeting was adjourned.

Respectfully submitted,

Marion Mitchell

Marion Mitchell
Executive Secretary
SWLA

Note: Attachments distributed at meeting and not mailed with this report.

ATTACHMENT A

SWLA Financial Status Report
For SLICE/CLR Project
For 1973/74

Balance in Savings Account.	$ 1,320.68	
Receipts Due (excluding interest)		
Balance on CLR Grant. . . . . ($50,000 grant; $34,800 received)	15,200.00	
Sub-total		$16,520.68
Less Encumbrances		
Balance on Two-Year Contract Through 8-31-74. . . . . With Univ. of Texas S.W. Medical School (Contracted for $73,980; paid $57,044.43)		$16,935.57
UNENCUMBERED BALANCE		$ 414.89

NOTE: The SWLA budget initially included a $1,000 allocation for SLICE; $553.21 has been expended for this project. The balance of $446.79 has now been re-allocated SLICE/CELS Project for 1974-76.

ATTACHMENT B

SWLA FINANCIAL STATUS REPORT
FOR
SLICE/CELS PROJECT FOR 1975-76
Statement Prepared October 11, 1974

Receipts in Savings Account (Fidelity Bank, OKC, No. 27-6263)			
4-16-74	La. State Library: First Installment	$3,400.00	
5-20-74	N. M. State Library	3,325.00	
10- 2-74	Balance from 1973-74 CELS Project	563.07	
6-18-74	Arkansas Library Commission	4,509.00	
7-17-74	Arizona State Library	4,312.00	
8-29-74	La. State Library: Final Installment	3,300.00	
Total in Savings Account			$19,409.07
Receipts Due (excluding interest)			
July 1, 1974 - Aug. 31, 1975	Texas State Library [1]	$16,609.00	
Oklahoma Dept. of Lib.; confirmed on 6-12-74 that payment would be processed		5,339.00	
Total Receipts Due			$21,948.00
Receipts Proposed			
Southwestern Library Association [2]		$1,500.00	
State Library Associations [2]		1,500.00	
Other (e.g. income from workshops, seminars, indirect grant managerment costs, etc.)		No est.	
Total Receipts Proposed			$ 3,000.00
Total Estimated Funds for Project			$44,357.07

NOTES:

1) Executed contract on 6/10/74 to SWLA $16,609 in monthly installments upon request from SWLA.

2) Recommended at Feb. 8, 1974 meeting of CELS Advisory Council

3) Preliminary budget projections for the 1975/76 SWLA Biennium-assuming membership approval of an increase from $5 to $10 in individual dues effective in 1976-indicated adequate funding from all sources to fund the SLICE/CELS Project through July 31, 1976. Initially, it was proposed to fund the project for 15 to 18 months; now it is proposed that funding will permit the project to launch on a full-time basis on Nov. 1, 1974 and have guaranteed funding for 21 months through July 31, 1976.

ATTACHMENT C

SOUTHWESTERN LIBRARY ASSOCIATION
SLICE/CELS PROJECT
Estimated Budget
1975-76 Biennium
Jan. 1, 1975 thru Dec. 31, 1976

Expenditures	YR 1975 Monthly	YR 1975 Annual	YR 1976 [1] Monthly	YR 1976 [1] Annual	Sub-totals	1975-76 Biennium
01 Personnel & Fringe						
011 Salaries						
SLICE/CELS	$1,200.00	$14,400.00	$1,250.00	$ 8,750.00 [1]		
Secretary (½)	275.00	3,300.00	295.00	2,065.00		
Sub-total		$17,700.00		$10,815.00	$28,515.00	
012 Fringe Benefits						
Old Age Survivors Ins. [2]						
SLICE/CELS		772.00		512.00 [1]		
Sec. (½)		193.00	34.50	120.75		
Sub-total		$ 965.00		$ 632.75	$ 1,597.75	
Unemployment Ins. [3]						
SLICE/CELS		8.40		8.40		
Sec. (½)		4.20	(½ for 7 mo)	2.45		
Sub-total		$ 12.60		$ 10.85	$ 23.45	
Workman's Compensation Ins. [4]						
SLICE/CELS		36.00		22.00		
Sec. (½)		8.25	(½ for 7 mo)	10.22		
Sub-total		$ 44.25		$ 32.22	$ 76.47	
Medical/Life Group						
SLICE/CELS		195.60		114.10		
Sec. ½		97.80		57.05		
Admin. cost		40.00		23.31		
Sub-total		$ 333.40		$ 194.46	$ 527.86	
Annuity Plan						
SLICE/CELS			20.00	140.00		
Sub-total					$ 140.00	
TOTAL PERSONNEL & FRINGE						$30,880

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Expenditures	YR 1975 Monthly	YR 1975 Annual	YR 1976 Monthly	YR 1976 Annual	Sub-totals	1975-76 Biennium
02 Office & Travel						
021 Printing, Postage & Supplies	$ 150.00	$ 1,800.00		$1,050.00	$ 2,850.00	
022 Petty Cash	15.00	180.00		105.00	$ 285.00	
023 Stationery		150.00		100.00	$ 250.00	
024 Communication	15.00 base					
L.D.	125.00	1,680.00		980.00	$ 2,660.00	
025 Travel CELS Coordinator		1,500.00		968.47	$ 2,468.47	
012 Office Space		1,200.00		700.00	$ 1,900.00	
TOTAL OFFICE & TRAVEL						$10,413.47
TOTAL BUDGET						$41,294.00

1) Pro-rata thru July 31, 1976

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APPENDIX B

SWLA Newsletter, Vol. 23, No. 6, December, 1974

SWLA NEWSLETTER
Official Publication of The Southwestern Library Association

Vol. 23, No. 6 | Editor: Patricia H. Smith | December, 1974

HUMANITIES INVENTORY

SURVEY OF RESOURCES IN THE HUMANITIES UNDERWAY

The Southwestern Library Association's "Humanities in the Southwest" Planning Project, funded by the National Endowment for the Humanities, is currently conducting an inventory of humanities resources available in libraries and related institutions in each of the six SWLA states. The inventory will focus particularly on those resources reflecting or pertaining to the uniqueness of the southwestern regional heritage.

Planning committees for each state were appointed in October by the respective state committee chairmen. The state committees consist of the state chairmen, two academic humanists, and others chosen from among such groups as library trustees, leaders in adult education, and other laymen. These groups met with the Project Director, Phyllis Maggeroli, in October to discuss guidelines for conducting the inventory and to devise the most practical method for conducting the inventory within their states.

The purpose of the inventory is to identify the material and human resources available in the region to support programs in the humanities. It will also seek to identify the facilities in the states for producing and presenting programs as well as for promoting and disseminating information about the programs. It will cover print and non-print resources, facilities, and personnel with program skills or expertise in the humanities within public, academic, special, governmental and institutional libraries as well as museums, historical societies and public media agencies. The committees are also gathering names of persons who are not affiliated with any of these institutions but who would be valuable in working with library-sponsored humanities programs.

The inventories are to be completed by early January, and the Regional Planning Team which is composed of the state committee chairmen, a representation of academic humanists from the states, SWLA officers, and two regional consultants will meet on January 16 and 17 in Dallas to refine the inventories and draft the initial project proposal which is to be the final product of this project. This proposal is to be a design for humanities programming in libraries throughout the region.

SOUTHWESTERNERS HEAR ABOUT PLANNING FOR LIBRARY EDUCATION AND NETWORKING

Helping to prepare librarians to meet the challenges of an information-rich and rapidly changing society is a commitment of SWLA. The development of a regional bibliographic network, a program to meet the continuing education needs of library staffs through the CELS project, and the interfacing of these regional activities with their corresponding national programs are the subjects of the four conference programs summarized below.

The Information Professions: An Explosion of Opportunity

While commending librarians for their efficient skills in the control of information packages (e.g., books) and for their service orientation to the public, Robert S. Taylor, Dean, School of Information Studies, Syracuse University, nevertheless contended that librarians are too "package-oriented and institutional-bound, rather than communications-oriented." Although libraries are "convivial institutions" with the necessary "neutrality and cultural halo to act as a true information service for all types of audiences," they are in danger of becoming isolated from the dynamic information transfer process. Taylor recommended three steps which the library professionals must take in order to become informational professionals.

(1) The library professionals must no longer be institutional-bound. They must realize that the library is only one of a number of agencies which can answer societal and individual informational needs.

(2) The library professionals must have a knowledge of the informational needs of society and of the

SWLA MEMBERS ARE INVITED TO ATTEND SWLA BOARD MEETING

SWLA Executive Board and the SLICE Council will be meeting at ALA Midwinter at 7:00 p.m. in Parlor Room F of the Palmer House. SLICE Office Director Maryann Duggan will present her final recommendations for developing an "ideal" bibliographic network in the southwest. Other items on the lengthy agenda include approval of the SWLA budget and progress reports of various SWLA projects. All SWLA members attending ALA Midwinter are welcome to attend.

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kinds of agencies and resources—both human and physical—that can be tapped to answer a question or need. Many of the information systems are designed for the sophisticated user, but systems must also be designed for the naive, information-poor user. Help for the naive user will rest primarily on the personal and empathetic counseling skills which may be supported by technology.

(3) The library professionals must develop a conscious self- confidence in their ability to advise a client as to what the best information is in a given situation.

Taylor summed up these three steps by stating that the library profession has the beginning skills and knowledges to move in this direction. However, if these steps are not taken, others—some of whom are less qualified—will become the information sources. These are people who are willing to assume risk, who will structure information to the individual capabilities of the user, and who will obtain the information from a myriad of sources and agencies.

Learning to Interface: Future Training for Service

During the second general session, Dr. Donald Ely and Dr. Margaret Chisholm attempted to resolve the controversies surrounding library school education and curriculum. Through several slide/tape segments and during the final panel discussion, reactions of library school faculty, students, practitioners, and employers to library education were assessed and evaluated. Ely and Chisholm's comments were based on two conclusions which were derived from a study of the competencies of librarians for current and anticipated library practices: first, that a large number of specific improvements in professional education in library and information science are needed, wanted, and are actively being sought; and secondly, that important changes in professional education will not occur until the whole field of library and information science is redefined in terms of future information needs and the probable shape of future information service institutions. In terms of this redefinition, professional and educational responsibilities must be restructured to cover the resulting spectrum of personal competencies required.

Following their presentation was a reaction panel consisting of members John Anderson, organizing chairperson of the Continuing Education Interest Group; Donald D. Foos, chairperson, CELS Advisory Group and dean of the Graduate School of Library Science, Louisiana State University; Esta Lee Albright, Associate State Librarian for Library Development, New Mexico State Library; Maurice Leatherbury, doctoral student, Graduate School of Library Science, University of Texas at Austin; Lotsee Smith, Assistant Professor, College of Education, University of New Mexico; James K. Zink, Director of University Libraries, University of Oklahoma; and Peggy O'Donnell, CELS Coordinator. Using flash cards denoting agreement, disagreement, or neutrality, the panelists reacted to a series of statements relating to library education such as "There is a core of knowledge which should be required of all library school students," and "All students should have a thorough knowledge of information science and automation practices." Those panelists evidencing a minority opinion were asked to explain their views, which in several instances provoked either either support or disagreement from the audience.

Bibliographic Network Institute

Objectives of the Bibliographic Network Institute, held on Thursday, October 17, 1974, were to examine the current status of bibliographic networking development in the six-state region, to introduce principles of bibliographic networking, and to explore networking possibilities for the future. Coordinated by SLICE Office Director Maryann Duggan and chaired by Lee Brawner, the panel members included James Wilkerson, Oklahoma Library Association; William Scholz, New Mexico State Library; James Allen, University of Arkansas at Little Rock; Margaret Cooley, Arizona State Library; William Gooch, Texas State Library; Sam Dyson, Louisiana Tech University; James Dodson, University of Texas at Dallas; Barbara Gates, IUC/OCLC Library Coordinator; and Harry Martin, University of Texas Law Library.

Bibliographic Network Institute participants

Ms. Duggan presented an overview of the networking potential in the southwest, citing such environmental factors as (1) the region's large geographical area spanning approximately 674,000 square miles, (2) the distribution of library resources with approximately 5,178,000 volumes added annually, (3) unique collection strengths in certain major universities, (4) the availability of existing network systems such as IUC/OCLC, SOLINET, the numerical registers, etc., and (5) already existing commitments in several states to various networks.

Considerations for selecting the "ideal" network were identified by Ms. Duggan as (1) the format and content of the bibliographic record, (2) the composition, growth potential, and design of the system, (3) telecommunication linkage requirements, (4) the legal basis for establishing a multi-state network, (5) interfacing capabilities with state, regional, and national networks, and (6) the impact of networking on train-

The *SWLA Newsletter* is published bimonthly. Material of regional interest may be submitted to the editor Mrs. Patricia H. Smith, Coordinator of Texas Library Systems, Texas State Library, P.O. Box 12927, Capitol Station, Austin, Texas 78711. Matters pertaining to individual or institutional memberships should be sent to Mrs. Marion Mitchell, Executive Secretary, SWLA, Inc., 7371 Paldao, Dallas, Texas 75240. Back issues of the *SWLA Newsletter* are available in microform from Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

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ing of library staffs. One major conclusion in the selection of the "ideal" bibliographic network is that it should be state-based, with a majority of librarians within a state participating in the same network.

In discussing the distribution of library resources, Ms. Duggan noted that approximately 7.67 volumes are added per year per square mile. Yet, tremendous variations exist among the states; in Louisiana, 13.12 new volumes are added annually per square mile while only 1.60 volumes are added in New Mexico. Generally three to sixteen libraries in each state add 50 percent or more of the new volumes.

Each state representative discussed new networking developments within his/her state. Several representatives cited the development and expansion of numerical registers which were based on the Louisiana Numeric Register. The emerging public and academic library systems and consortia were cited in several states, and special mention was made of a thorough and well-documented study by CANDLES (Central Arkansas Network for Delivery of Library and Educational Services) which compared the cost and hit-rates of several existing networks, including IUC/OCLC, as alternatives to original cataloging. Oklahoma's computerized state-wide union list of serials, a statewide inventory of computer applications in libraries, and an assessment of the future of MARC-O were discussed. In Texas, cooperation between two networks, the Texas State Library Communications Network and the Texas Information Exchange, indicates greater involvement between the academic and public libraries. As in the case of Texas, the New Mexico State Library is funding partially the participation of academic libraries in IUC/OCLC and the evaluation of such participation through a contract with WESTAT. Additionally, the New Mexico State Library has entered into a contract with BIBNET to improve interlibrary loan service in the state. The BIBNET contract will include placing the restrospective NEMISYS numeric register in the data base to show locations of state holdings back to 1972 and will offer the opportunity to add retrospective holdings at any future time or to transfer records generated by OCLC or BATAB users into the data base without manual editing. A major element of the New Mexico project is the interfacing with other systems such as OCLC and the Washington Library Network.

Bill Scholz also discussed his SLICE-contracted working paper on "Evaluation for Network Planning and Operation." His conclusions will be included in a future *SWLA Newsletter*.

NCLIS Report

Rod Swartz presented the proposed National Program for Library and Information Services using slides to capsulize the second draft of the National Program released September 15, 1974, by the National Commission on Libraries and Information Science.

Mr. Swartz reported that the highest priority of the Commission is the development of a total national program. As presently conceived by the Commission the Federal Government would force no library or other information service to join the network component of the national program, but would provide technical inducements and funding incentives to state governments and the private sector to strengthen their ability to become effective components of a mutually reinforcing program. The Commission's proposal identifies, as key components of the national program, the fifty state governments, the private sector, and the Library of Congress.

The plan for action, Mr. Swartz reported, includes (1) circulation of the second draft; (2) solicitation of comments and criticisms; (3) publication of some 27 research papers on special subjects; (4) in-house program development with that of other federal agencies; (5) propose legislation, and (6) prepare supporting justification. Mr. Swartz pointed out that pending legislation such as the White House Conference Act and the Library Partnership Act may affect the action of the Commission.

In answer to a question as to what Federal agency would administer the Federal coordination of the program, Mr. Swartz reported that it might be a new agency, or an existing agency. When asked if he was optimistic about success of the program, Mr. Swartz replied, "Yes, especially with Al Trezza as Executive Director." He also expressed some optimism as to an increase in the Commission's budget for fiscal 1976 which would permit necessary increases in staff.

When asked if federal funding would continue to be incentive or would future funds support ongoing programs, Mr. Swartz reported that the Commission accepts the principle of building on strength.

When asked what librarians can do to help, Mr. Swartz urged librarians and trustees to read the second draft of the proposed program, send comments and criticisms to the Commission, and talk to their congressmen. He also suggested promoting meetings and reporting these discussions to the Commission.

Rod Swartz was Acting Executive Director for the Commission but recently left to study highly developed national library networks in Finland and Germany under Fulbright and Council on Library Resource grants. Al Trezza joined the Commissions staff in mid-November as Executive Director.

Free multiple copies of the second draft of A National Program for Library and Information Services are available from National Commission on Libraries and Information Science, Suite 601, 1717 K Street, N.W., Washington, D.C. 20036.

SLICE COUNCIL MINUTES

The SLICE Council, chaired by Lee Brawner, met on October 15, 1974, and reviewed the status of current SLICE projects, including the current two-year grant from the Council on Library Resources. Maryann Duggan, SLICE Office Director, reviewed the bibliographic networking objectives over the past two years, which were the following:

(1) To study the legal bases for regional bibliographic networking (task completed with paper by Harry Martin);

(2) To investigate existing network data bases (task to be completed upon submission of a paper by William Scholz);

(3) To study alternatives for "best" network in the southwest (task completed with an ALA/ISAD Institute on "Alternatives in Bibliographic Networking or How to Use Automation Without Doing It Yourself" held in New Orleans, February 28-March 1, 1974);

(4) To observe and monitor the development of the Ohio College Library Center (OCLC) in the southwest (the SLICE Office Director serves as liaison with the IUC Bibliographic Networking Committee);

(5) To consider telecommunications grids for effective communications and networking for six states (task completed; contract with Dr. Julius Aronofsky and Robert Korrfage of Southern Methodist University for a working paper on "Consideration of Telecommunications Linkage in the Six States");

(6) To develop workshops, institutes, and other continuing education packages as they relate to bibliographic networking (task accomplished with ALA/ISAD Institute; John Corbin's Automation and Networking Institute for which syllabus and slides are being developed; and the Regional Bibliographic Networking Institute presented at the SWLA Biennial Conference in Galveston);

(7) To formulate recommendations for the "ideal" bibliographic network in the southwest, which will be included in the final SLICE Office Report.

The SLICE Council reviewed the financial status report for the SLICE/CELS Project for the 1975/76 biennium.

Action taken my the SLICE Council included the following:

(1) Reaffirmed the bibliographic networking goal for the 1975/76 biennium, which is "To proceed with the orderly review of alternatives for a regional (interstate) bibliographic data base (using the six states in the SWLA as the basis for determining the boundaries of the region) and, for the purpose of sharing resources to work toward an inter-state inter library loan policy consistent with the national developments";

(2) Recommended the formulation of a Bibliographic Network/Resource Sharing Task Force, composed of representative members from each southwestern state to implement the above goal;

(3) Recommended the publication and dissemination of Harry S. Martin's report on the "Legal Aspects of Establishing a Regional Interstate Library Network in the Southwest";

(4) Elected William D. Gooch, Assistant State Librarian, Texas State Library, to chair SLICE Council for the 1975/76 biennium. Elected to the SLICE Council Executive Committee were Esta Lee Albright, New Mexico State Library, as the state library agency representative, and Jim Wilkerson, Oklahoma Library Association, as the state association representative.

(5) Approved the motion to add the SLICE/CELS Coordinator to the SLICE Council.

ANNOUNCEMENT

Institute
on
Continuing Education Program Planning
For Library Staffs in the Southwest
March 17-28, 1975

Sponsored by the U.S. Office of Education through the Southwestern Library Association and the LSU Graduate School of Library Science.

PROGRAM GOALS:

A two-week institute on the LSU campus to provide training in the process of planning, developing and implementing continuing education programs for library staffs through a structured instructional program dealing with survey instrument design; survey findings analysis; development of summary conclusions and recommendations; development of educational technology; needs assessment; program design; and program implementation and evaluation.

PARTICIPANTS:

Thirty representatives from the SWLA area by type-of-library and/or association. Limited to five from each state. Participants will receive $75 per week stipend, or $150 for the two-week institute with a $15 per week dependency allowance per dependent prorated on the basis of a five-day week. Participants are exempt from all tuition and other required fees, but are responsible for the cost of room, board, and travel.

INFORMATION AND APPLICATION FORMS MAY BE OBTAINED FROM:

Dr. Donald D. Foos
Institute Director
Graduate School of Library Science
Louisiana State University
Baton Rouge, Louisiana 70803
(504) 388-3158

APPLICATION DEADLINE: January 15, 1975

CALENDAR OF UPCOMING EVENTS

	1975	
January 19-25	American L.A. Midwinter	Chicago, Ill.
March 13-15	New Mexico L.A.	Socorro, N.M.
April 2-5	Texas L.A.	Dallas, Tx.
April 9-11	Louisiana L.A.	Alexandria, La.
April 10-12	Oklahoma L.A.	Tulsa, Okla.
April 13-17	Association for Educational Communications and Technology	Dallas, Tx.
June 29-July 5	American L.A.	San Francisco, Cal.
September 25-27	Arizona L.A.	Phoenix, Ariz.
October 10-12	Arkansas L.A.	Little Rock, Ark.
	1976	
January 18-24	American L.A. Midwinter	Chicago, Ill.
Spring	New Mexico L.A.	Santa Fe, N.M.
April 7-10	Texas L.A.	Houston, Tx.
Spring	Louisiana L.A.	Lafayette, La.
June 20-26	American L.A.	Chicago, Ill.
November 7-10	SWLA (jointly with Mountain Plains L.A.)	Albuquerque, N.M.
	1977	
April 13-17	Texas L.A. (jointly with New Mexico L.A.	El Paso, Tx.
	1979	
Summer	American L.A.	Dallas, Tx.

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CONTINUING EDUCATION CALENDAR FOR THE SOUTHWEST

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The following are colloquia sponsored by the Graduate School of Library Science, University of Texas at Austin. For further information, contact Dean Glenn Sparks, Graduate School of Library Science, University of Texas at Austin, Austin, Texas 78711 (512/471-3821).

- Speaker: Joyce Veenstra
  Specialty: Cataloging, Management
  Date and Time: January 30, 1975, 8:00 p.m.
- Speaker: Robert Collinson
  Specialty: Television producer
  Date and Time: February 13, 1975, 4:00 p.m.
- Speaker: Leonard Guy
  Specialty: British educator and consultant
  Date and Time: March 13, 1975, 4:00 p.m.
- Speaker: Vivian Hewitt
  Specialty: Special librarian and internationalist
  Date and Time: April 14, 1975, 8:00 p.m.
- Speaker: Guy R. Lyle
  Specialty: Former administrator, author on college librarianship
  Date and Time: April 24, 1975, 4:00 p.m.

January, 1975

- Title: "In the Spirit of Independence": School Librarians Workshop
  Sponsor: Texas Association of School Librarians and Region 10 Education Service Center
  Location: Richardson ISD Administration Building, 400 S. Greenville Ave., Richardson, Texas
  Date: January 22, 1975
  Contents: "Local and Regional History—Texas Bicentennial Resources for School Librarians"; "Preventive Maintenance of Audio-Visual Material"; "Library Promomotional Ideas Using the Bicentennial Theme"; Revision of chapters 6 and 12 of the Anglo-American Cataloging Rules; and media exhibits of bicentennial materials.
  Contact: H. W. Goodgion, Executive Director, Region 10, Education Service Center, 400 E. Spring Valley, P.O. Box 1300, Richardson, Texas 75080 (214/231-6301).

February, 1975

- Title: Institute on Materials for Teaching the Afro-American Experience
  Sponsor: Zale Library and the Division of Continuing Education, Bishop College
  Location: Bishop College, Dallas, Texas
  Dates: February 13-15, 1975
  Cost: $15 for Dallas Independent School District personnel and for Dallas County Library Association members; $25 for all other persons
  Enrollment: Teachers of English, history, or some area of the social sciences; Librarian/media specialists; Curriculum developers or chief instructional officers of schools; Subject area coordinators; and Teachers of teachers.
  Contents: Evaluation of present instructional materials on the Afro-American experience in Texas schools; Discussion of criteria for evaluating materials; Identification of available resources on the Afro-American Experience suitable for schools; Development of multi-media packages on the Afro-American Experience, etc.
  Contact: Dr. Harry Robinson, Jr., Institute Director, Zale Library, Bishop College, 3837 Simpson-Stuart Road, Dallas, Texas 75241 (214/376-4311, Ext. 270).

- Title: Networks and Networking II; The Present and Potential
  Sponsor: Information Science and Automation Division of ALA & the Southeastern Library Network (SOLINET)
  Location: Braniff Place Hotel, New Orleans, Louisiana
  Dates: February 27-28, 1975
  Cost: $75 to members of ALA and staff members of SOLINET institutions; $90 to non-members, and $10 to library school students
  Contents: "A Systems Approach to Selection of Alternatives;" "The Library of Congress, MARC, and Future Developments;" "Data Bases, Standards and Data Conversion;" "User Products;" "On-line Technology;" "Publishers' View of Networks;" "Administrative, Legal, Financial, Organizational and Political Considerations;" etc.
  Contact: Donald P. Hammer, ISAD, American Library Association, 50 East Huron Street, Chicago, Illinois 60611.

March, 1975

- Title: The Challenge of Reading: An Institute on Reading
  Sponsor: School of Library Science, Texas Woman's University
  Location: TWU, Denton, Texas
  Date: March 1, 1975
  Cost: Undetermined; will probably be under $10, including luncheon
  Contents: (1) Librarian's role in reading programs and literacy education; (2) Techniques, skills, and materials useful in elementary, secondary, and adult reading programs; (3) Methods and materials useful with undereducated youths and adults.
  Speakers: Dr. Edwin H. Smith, Florida State Univ.; Miss Beth Moore, State Consultant, Right to Read Program, Southern Methodist University; Dr. Frank J. Bertalan, TWU School of Library Science; Sister Ann Korkmas, Literacy Services Librarian, Dallas Public Library.
  Contact: For further information, contact Dr. Hannah J. Kunkel, Institute Coordinator, School of Library Science, Texas Woman's University, Denton, Texas 76204.

April, 1975

- Title: 12th Annual Clinic on Library Applications of Data Processing
  Sponsor: Graduate School of Library Science, University of Illinois
  Location: Champaign, Illinois
  Dates: April 27-30, 1975
  Contents: Use of Computers in Literature Searching and Related Reference Activities in Libraries
  Contact: Brandt Pryor, Office of Continuing Education and Public Service, University of Illinois, 116 Illine Hall, Champaign, Illinois 61820

May, 1975

- Title: Mini-Computers—Libraries
  Sponsor: LARC Association
  Location: Mayo Clinic, Rochester, Minnesota 55901
  Dates: May 22-23, 1975
  Cost: $90 for LARC members; $120 for non-members
  Enrollment: Limited to 100
  Content: 1st day includes presentation pertinent to a representative mini-computer system; 2nd day includes discussion on mini-computer systems, their applications, and problems of design and implementation as related to special, medical, and network libraries.
  Contact: Jack D. Key, Director, Mayo Foundation Medical Library, 200 First St., SW, Rochester, Minnesota 55901 or Glenn L. Brudvig, University of Minnesota Bio-Medical Library, Minneapolis, Minnesota 55455.

June, 1975

- Title: Institute on Library Service to the Business Community
  Sponsor: School of Library and Information Science, State University of New York at Albany
  Date: June 9-27, 1975
  Contact: For more information, contact Prof. Robert S. Burgess, School of Library and Information Science, State University of New York at Albany, Albany, New York 12222.

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Lee Brawner, Donald Foos, Peggy O'Donnell

CELS ADVISORY GROUP REPORT

Following the acceptance in October, 1973, by the SWLA Executive Board of the *Continuing Education for Library Staffs in the Southwest (CELS): A Survey with Recommendations* report completed by Allie Beth Martin and Maryann Duggan, the CELS Advisory Group was created. Composed of the SLICE Council, SWLA representatives, consultants, the SLICE Office Director, and the deans and directors of library schools in the Southwest, the Advisory Group met for the first time in Dallas on February 8, 1974, and 42 members attended. The Group authorized SWLA to proceed with preparing proposals for HEA Title II-B Institutes during FY 1974 and discussed programming of a General Session on Continuing Education at the SWLA Conference in Galveston. John Anderson, the organizing chairman of the SWLA Interest Group on Continuing Education presented a report on tentative action plans. The Group approved a Position Description for the CELS Coordinator job and approved the printing of a six state regional calendar of continuing education offerings in the *SWLA Newsletter*. A Nominating Committee was appointed to suggest a chairman and vice-chairman of the Advisory Group as needed. Following the meeting, Donald D. Foos was selected as chairman. As a result of the meeting, the SWLA submitted a proposal for a two-week Institute to be held March 17-28, 1975, on the campus of Louisiana State University in Baton Rouge. The "Program Planning Institute" as approved by the U.S. Office of Education under HEA Title II-B is to be conducted by the LSU Graduate School of Library Science with Donald D. Foos serving as Project Director. (A CELS Coordinator, Peggy O'Donnell, was appointed by the SWLA Executive Board effective November 1, 1974.)

The Group met in Galveston on October 15, 1974, and presented a motion which was approved by the members concerning the reorganization of the CELS Advisory Group. The Group's composition would be deans and directors of library schools in the Southwest, the chairman of the SWLA Continuing Education (CE) Interest Group, chairman of CE committees of library associations in the Southwest, and CE representatives for state library agencies. This recommendation was presented and approved by the SWLA Executive Board on October 15, 1974. (Due to the recommended Group's reconstituted membership, no action was taken on the Report of the Nominating Committee chaired by Kathy Puffer. Nominations will be called for from the new members.)

Representatives of the CELS Advisory Group met with Frank A. Stevens, Chief of the Library Education and Postsecondary Resources Branch, Division of Library Programs, U.S.O.E., Washington, D.C., and Harold Goldstein, Director, Leadership Training Institute, Tallahassee, Florida, on October 16, 1974, in Galveston to discuss the U.S.O.E. Institute to be held in March, 1975, at Louisiana State University. (The Report of the CELS Advisory Group was presented and accepted by the membership at the SWLA General Membership Meeting on Wednesday, October 16, 1974, in Galveston, Texas.)

NATIONAL CONTINUING EDUCATION NETWORK PLANNING MEETING

CELS Coordinator Peggy O'Donnell, Dr. Donald D. Foos, Allie Beth Martin, and Mary Power represented the southwestern region at a meeting in Anapolis, Maryland, in October to study methods of implementing the Continuing Library Education Network and Exchange (CLENE) report commissioned by the National Commission on Libraries and Information Science. The goals of CLENE, as identified in the report submitted by Elizabeth Stone, Dean, Catholic University of America are the following:

(1) To provide equal access to continuing education opportunities, available in sufficient quantity and quality over a substantial period of time to ensure library and information science personnel and organizations the competency to deliver quality library and information services to all.

(2) To create an awareness and a sense of need for continuing education of library personnel on the part of employers and individuals as a means of responding to societal and technological change.

Copies of this final report may be obtained from NCLIS, Suite 601, 1717 K. Street, N.W., Washington, D.C. 20036.

Southwestern Library Association Newsletter
SWLA Executive Secretary
SWLA, Inc.
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Dallas, Texas 75240

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APPENDIX C

The following pages are a portion of a memorandum and accompanying proposal from James T. Dodson, Chairman of the Bibliographic Network Committee (BNC) of the Interuniversity Council of North Texas (IUC). The Table of Contents of the entire proposal has been included. Anyone wishing further information about the AMIGOS Network is asked to contact Mr. Dodson.

UTD

THE UNIVERSITY OF TEXAS AT DALLAS

UNIVERSITY LIBRARY

January 14, 1975

TO: Bibliographic Network Committee and all Other Libraries Interested in Participating in an Expanded IUC/OCLC Network

FROM: James T. Dodson, Chairman, BNC Executive Board

SUBJECT: Approval and Implementation of the AMIGOS Network

The Executive Board of the BNC is pleased to inform you that the IUC Board of Directors approved the proposal for the expansion of the IUC/OCLC Network at its meeting on January 10, 1975. The proposal document, prepared by the Executive Board and the IUC/TAGER staff, had been sent to the IUC Board in mid-December in anticipation of the oral presentation and discussion on January 10, 1975. Some changes, primarily relating to the Bylaws and requested by the IUC Board at the meeting, have been incorporated in the enclosed proposal document, but will require IUC Board approval. Please read this document carefully.

The next step in the implementation of the AMIGOS Network is the signing of a Letter of Commitment to Participate, which is a formal Agreement between your institution and the IUC. It is our objective to forward these letters the first week in February and to allow one month for signed commitments to be returned to Mr. Ross Peavey, Executive Director of IUC. You will note that a start-up assessment not expected to exceed approximately $3400 per institution, is required by the proposal as approved by the IUC Board. Pending receipt of formal Commitments from all institutions desiring to participate, we cannot finally determine the actual amount of this assessment. We do expect to request payment of $1000 with the signed committing letters, with the balance assessed at a later date. If you have any questions concerning the proposal document or the Letter of Commitment to Participate, contact Mr. Peavey or myself.

A meeting to organize formally the AMIGOS Bibliographic Council (ABC) will be held in Dallas promptly after all Commitment Letters have been received. Specific details of the meeting will be distributed at a later date. In the interim the Bibliographic Network Committee will continue to function as the administrative body of the network.

JTD/rcb
Enclosures

214 690-2961 BOX 643 RICHARDSON, TEXAS 75080

A Proposal

for the Expansion

of the

IUC/OCLC Network

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Introduction

The Bibliographic Network Committee proposes and recommends to the IUC Board of Directors an expansion of the present IUC/OCLC Network. This expanded network would include most of the major academic libraries in Arizona, Arkansas, New Mexico, Oklahoma, and Texas as well as a variety of other academic, public, school, and state libraries of the region. The widespread interest in participation in an expanded network results from the success of the OCLC system regionally and nationally, and a desire of libraries to share in the benefits that obtain from participation in an OCLC Network. The expansion of the present network is a major undertaking but one that will benefit the present members of the IUC/OCLC Network and all the new libraries. There is considerable immediacy for an expanded network to be planned and implemented as proposed herein. OCLC nationally is expanding rapidly but in a coordinated manner. The OCLC staff have tentatively projected our expansion for the Summer of 1975 in their national schedule for terminals, telephone lines, computer capacity, and staff support activities.

The Committee has considered many aspects of the expansion and recommends in this proposal what it considers to be the best approaches to the major problems. Some of these problems are the cost feasibility and capabilities of a new network; the provision and maintenance of terminals; the phasing, staffing and housing of the network; the identity, governance and operation of the network; and the relationship of the new network to the IUC/TAGER staff.

Some of the libraries in the IUC/OCLC Network own their terminals; many pay for them on a per hit basis. The same situation will exist in the new network so some financing of terminals will be necessary. Although dependability of the terminals has been high, provisions for maintenance must be the responsibility of the network.

The implementation of a new network will require more staff to assist the libraries and perform the necessary functions. The hiring, compensation, and housing of the network staff are major concerns of the Committee.

The IUC/OCLC Network suffers from an identity crisis. The Committee believes the problem will become more acute when the network is comprised of a more diverse group of libraries. The Committee's solution to this problem is to identify the network as AMIGOS and its governing body the AMIGOS Bibliographic Council (ABC). Several regional groups have acronyms to identify their names; NELINET, PALINET, SOLINET. The Committee thought a name distinctive of the Southwest would be more appropriate and original than another "NET." In our use of the word, AMIGOS means "friends" and nothing more, although we are sure many will try to turn it into an acronym.

Governance is of prime importance to the success of the new network. The Committee after reviewing several alternatives is convinced that the operation of the ABC and AMIGOS under the umbrella of the IUC Board is the best possible arrangement. Governance is discussed in detail in the proposal.

Rationale for Expansion of the IUC/OCLC Network

Library cooperation in the Southwest took a giant leap forward with the implementation of the IUC/OCLC network. The initial success of the operation portends a revitalized approach to the resolution of mutual problems confronting the libraries in the geographic region. The Board of Directors of the IUC is to be applauded for its leadership in effecting the first OCLC network west of the Mississippi.

The AMIGOS Bibliographic Council, the expanded network presented here, is based on several months of planning by the Bibliographic Network Committee and the IUC staff. The expansion is justifiable for a number of compelling reasons. Among these justifications are:

1. The Southwest region is looking to the Interuniversity Council to provide an expanded network. The IUC has philosophically accepted its role in this respect with the adoption of the bylaws of the Bibliographic Network Committee. Furthermore no other agency in the Southwest has initiated any plans to emulate the OCLC Network.

2. Cost effectiveness of the network can be maintained. A hit rate approximately the rate of the present network can be maintained. The expanded network

could include access to the catalog data base (only service presently available), the serials control system, and all administrative costs at a rate comparable to the present rate.

3. Serials control system from OCLC cannot be utilized without some expansion. The present members of the network will not be able to use the OCLC serials control system without the installation of an additional trunk line. Expansion of the network as this program is inaugurated falls into logical sequence.

4. Some present network members might withdraw, weakening the tie-in, should the expanded network capability fail to materialize. Initial operation figures indicate a strong reliance of the network upon the input of the larger libraries. The limitation of terminals in the present network configuration is restricting the input on the part of some of these libraries. As a result they are unable to input at full capacity. Failure to provide additional terminals could lead to their seeking affiliation with another network.

5. The leadership of the IUC should be continued in this important educational area. The achievements of the IUC are now widely recognized throughout the Southwest. Ten years of accumulated expertise in cooperation cannot be speedily replicated. There have been notable achievements in library cooperation. Now the IUC should continue its leadership through its willingness to share in the advantages of an ongoing network operation. This proposal embodies the cooperative spirit suggested in the philosophy of the North Texas Higher Education Study.

6. The Southwest is willing to accept continued IUC governance of the network. Throughout the planning period for this proposed expansion of the network, the IUC librarians have encountered a feeling of high respect for the IUC stability and the creativity of its presidential leadership. This appreciation is noticeably manifested by the concurrence of the southwestern libraries to continue IUC governance over an expanded network.

7. The OCLC operation remains the only viable system available. The successful operation and exportation of the OCLC programs to other parts of

the United States continue to show that the OCLC system remains the only viable system of its type. A few other systems have initiated cataloging programs, but none has achieved either the proficiency of OCLC nor offers the potential for future service.

8. The Southwestern network provided by IUC could become the regional node of a national network. The National Commission on Libraries and Information Science recommends that a truly national network for bibliographical control and handling of information can best be achieved through the development of regional networks. The AMIGOS network created by the IUC has the potential of becoming this type of regional system.

9. A Southwest regional catalog of available library materials can be developed. It is feasible that within a reasonable time period a data base of the holdings of the southwestern libraries in the OCLC system could be developed into a union catalog of library holdings. This goal cannot be successfully achieved without participation of the libraries in a system such as this one.

10. Greater utilization of both the human and material resources in the libraries can be achieved through the network configuration. The expanded network will develop a forum for wide-ranging discussion of mutual problems. The results should lead to improved access to resources through interlibrary loan, cooperative acquisitions, and shared expertise of library personnel.

11. The potential for grants and endowments is increased through the expansion of the network. A geographic expansion of the network should logically provide a broader base with a stronger appeal to national foundations and state and federal governments for grants and endowments to support special phases of the cooperative program.

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Proposal

The Existing IUC/OCLC Network

The present Network, proposed and promoted by the Interuniversity Council of the North Texas Area (IUC), is composed of thirteen IUC institutions and six other academic libraries in Texas and New Mexico.* A grant of LSCA Title III funds from the Texas State Library permitted three public libraries, a school district library, and the Texas State Library to participate as well.** These 24 libraries are a representative sampling with large and small private and public academic libraries, large and small public libraries, two medical libraries, and a school and a state library. Title III grants from the Texas and New Mexico State Libraries have made possible the implementation of a seven-month evaluation of the OCLC system in each library. This evaluation is being conducted by Westat, Inc. of Rockville, Maryland.

Each library is a member of the Bibliographic Network Committee which is responsible for the operation of the Network. A small IUC/TAGER administrative staff supported entirely by Network funds performs the required administrative, accounting, orientation and training, and maintenance functions.

The Network has 32 interactive terminals connected by a telephone line to the computer and data base at OCLC in Columbus, Ohio. Libraries are using the Network for cataloging, card production, preorder searching and interlibrary loan, and union catalog activities. The OCLC data base, containing over one million titles, is comprised of approximately 40% MARC records from the Library of Congress and 60% locally produced records. The data base is growing currently at the rate of 7600 records per week.

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*Austin College, Baylor College of Dentistry, Baylor University, Bishop College, Dallas Baptist College, East Texas State University, Eastern New Mexico University, New Mexico State University, North Texas State University, Southern Methodist University, Texas Christian University, Texas Tech University, Texas Woman's University, University of Dallas, University of New Mexico, The University of Texas at Arlington, The University of Texas at Austin, The University of Texas at Dallas, The University of Texas Health Science Center at Dallas.

**Dallas Public Library, Fort Worth Public Library, Irving Independent School District Library, Irving Municipal Library, and the Texas State Library.

In a geographic area bounded by Maine, Florida, Illinois, and New Mexico libraries are using or preparing to use the OCLC system. There is no question that OCLC has become a national bibliographic network: a national bibliographic network that currently includes the majority of principal resource libraries east of the Rocky Mountains.

The AMIGOS Bibliographic Council (the expanded IUC/OCLC Network)

AMIGOS will include the present network and other libraries in the six states of the Southwest. (Potential new libraries are listed in Exhibit C of the Cost Study). In this proposal, 120 terminals in 62 libraries would be required. Five telephone lines will connect the terminals to OCLC.

An expanded staff located in Dallas will develop and operate the new network, orient and train library staffs, and perform other tasks necessary for the success of the network.

Capabilities of AMIGOS

Libraries in AMIGOS will be able to catalog monographs and serials, obtain catalog cards, and produce in-house spine, book pocket labels, and cataloging copy from a separately purchased printer. Preorder searching and interlibrary loan activities will be facilitated by information from the network. The serials control subsystem that is expected to be operational by Fall of 1975 will provide for the maintenance of serials holding records through the input of serials holding data, check-in of current serials, and claiming of serial missing issues.

The cataloging of materials and the input of holdings data will create a union catalog of holdings of libraries in the Southwest as well as knowledge of the holdings of hundreds of other libraries in the OCLC system. Libraries will have the opportunity to provide terminals in public services areas to offer easier access to its holdings data and the holdings data of many other libraries.

Guidelines Used in Developing the Expansion Proposal

In developing the expansion proposal the Executive Board developed specific guidelines and accepted certain assumptions which may be found on Pages 15, 16,

and 17 of the Cost Study. Three additional guidelines were established:

1. All libraries that responded positively to the interest survey were considered potential participants in the expanded network.

2. The contract period for all new libraries will be three years, but subject to annual review concerning participation and "user rate".

3. A participating library will be expected to guarantee a minimum annual volume of hits. This mutually acceptable number will be stated in the annual agreement.

Configuration of AMIGOS

A survey of over 100 libraries in the Southwest made in late Spring and again in October of 1974 indicated 49 new libraries were interested in participation in an expanded network. These libraries, and their volume of title cataloging, were used to develop this proposal for an expanded network. While this proposal gives some indication of user costs, actual costs will be determined by the number, location, and cataloging volume of the libraries committed to participation.

After a careful study of the complex telephone line rates, five telephone trunk lines were configured to accommodate the interested libraries. The number of terminals for each line was limited to less than thirty to assure a satisfactory terminal response time. Exhibits B, C, and D of the Cost Study are helpful in understanding the line configurations.

Administrative Staff for AMIGOS

The size and complexity of the expanded network will require an administrative staff of several full-time persons. The development and operation of the network will be the responsibility of an Executive Director of AMIGOS Bibliographic Council. (See Appendix 1 for job description). Professional and support staff will provide orientation and training for all member libraries, as well as assistance in the full utilization of the OCLC system. (See Appendix 2 for job description for Library Coordinator). Other staff involved in accounting and secretarial activities will be required. All libraries in the network can

be served most efficiently from administrative offices located in Dallas. The proposed administrative budget is itemized in Exhibit E of the Cost Study.

Provisions of Terminals

Two methods will be available for participating libraries to be provided terminals. A library may purchase the terminal outright for the estimated price of $3700. The other approach is for the network to arrange a bank loan to finance the purchase of the terminals needed. The individual library would then pay for the terminal through a special "user rate" charge over a period of three years.

Maintenance of Terminals

The OCLC Model 100 terminals have proven very dependable and require relatively little maintenance. However, the problem of providing service to the terminals is very important. The expansion proposal recommends a contractual arrangement with OCLC/Syntonics. Details of this arrangement are explained in the Cost Study, Page 16, Item 4.

Estimated Operating Cost of the AMIGOS

Two separate cost factors were identified in developing an estimate of the total cost of AMIGOS. One factor is the regional costs composed of the following items: telephone lines and modems, terminal financing, terminal maintenance, network administration, and a 10% contingency allowance. The second factor is the "cataloging hit rate" charged by OCLC for the use of the data base for cataloging and for use of the serials control system. Estimates of total operating cost and "user rates" costs for the first year of operation are detailed in Exhibit A, Page 18 of the Cost Study.

Costs to Individual Libraries

The participants in AMIGOS will have two cost elements to consider: start-up costs and operating costs. After all the participating libraries are identified in early 1975, approximately eight months will be required to make the expanded network operation financially self-supporting. Telephone line costs, terminal financing, and administrative expenses will be ongoing during these eight months, but there will be insufficient income from use of the system to offset these expenses. The detailed cost calculations are itemized

in Exhibit F of the Cost Study. To provide the funds needed during this start-up period, each library not participating presently in the IUC/OCLC network will pay an assessment of approximately $3400 at the time of its commitment to participate. The libraries in the present IUC/OCLC Network financed the start-up period of the network in the same manner. Other costs will be the actual costs of installation of terminals, catalog profiling, and operating manuals which together should average about $600. All estimated user charges will be paid annually in advance.

The operating costs includes the "user rates" for the cataloging and serials control functions, (refer to Exhibit A, Page 18of the Cost Study) and the charge for catalog cards which currently is 3.5 cents per card. These operating costs may vary, however, if a library chooses not to use the serials control system or if it purchases a terminal initially. Libraries may also purchase magnetic tape records of the items it enters into the OCLC system. The cost of these tapes will be negotiated with OCLC.

Governance of AMIGOS

The Bibliographic Network Committee proposes a new organizational structure for the governance of the expanded network. Several possibilities were considered before the Committee recommended a new structure that would place the responsibility for the operation of the expanded network in a new organization composed of representatives of each participating library, and the network under the umbrella of the IUC Board of Directors. This structure provides for an organization parallel to the present IUC staff operation and under the IUC Board of Directors. It would have its own Executive Director and staff who administer and expedite the operation of AMIGOS.

The required characteristics of the organization responsible for the administration of AMIGOS were identified carefully. The organization must be incorporated; it must have a 501(c)3 exemption status from the IRS; and it must have the ability to borrow money. A new organization could incorporate relatively easily, but securing 501(c)3 exemption status is a slow process and not guaranteed of success. Finding a financial institution willing to lend a large sum of money to a totally new organization could be difficult. After considering these factors and the desire to become operational as soon as

possible, the Bibliographic Network Committee decided to recommend the new network remain under the IUC umbrella that provides a charter, the exemption status, and the ability to secure bank financing.

The Committee has prepared a draft of bylaws for the AMIGOS Bibliographic Council (See Appendix 3). These bylaws are essentially a reworking of the current Bylaws of the Bibliographic Network Committee but with specific definition of the relationship of the Council to the IUC Board and the governance and functions of the Council. The intent of the Committee through the proposed bylaws is to assign the ultimate governance of the Council to the IUC Board, and the responsibility and authority for the operation of the network to the Council and its staff. All significant matters of policy will be presented to the IUC Board for its approval. Annual operating budgets, financial loans, expansion beyond the six states of the Southwest, punitive measures for member institutions, and contract approval are examples of these kinds of policy questions. At meetings of the IUC Board, planned in conjunction with the Executive Director of the IUC, the Executive Director of AMIGOS will present quarterly fiscal and progress reports of the network in addition to an annual report.

The current three year contract between the IUC and OCLC expires in November 1976. The Committee suggests that the proposed governance arrangement could be reviewed at that time as well. This would give the IUC Board and the members of the Council almost two years of experience to evaluate and a basis for recommending desirable changes.

Timetable for Implementation

The Bibliographic Network Committee is optimistic that the expanded network serving the Southwest can be operational during the Fall of 1975. To achieve this goal, the following schedule should be followed during the next few months.

1. The Committee will seek and receive, hopefully, the approval of the IUC Board of Directors for the plans for AMIGOS in January, 1975.

2. The activities listed in the Operational Timetable (See Appendix 4) must be performed on schedule.

3. A search will begin immediately for an Executive Director of the AMIGOS Bibliographic Council upon the approval of the plans for expansion by the IUC Board. (See Appendix 5 for Recruiting Strategy and Position Advertisements).

4. The IUC/TAGER staff will maintain its present level of support of the network until April, 1975, with the exception of E. L. Crandell who will continue until September, 1975.

5. All new libraries not participating presently in the IUC/OCLC Network must complete a contract and submit the payment of the start-up assessment no later than February 28, 1975. There will be no provision for adding new libraries after that deadline for receiving the Letters of Commitment because the planning and development of AMIGOS depends upon firm data from specific libraries.

Early in 1975 new administrative staff will be hired for a variety of responsibilities. During the following transitional period most of the present services provided the IUC/OCLC Network by IUC staff will be assumed by the AMIGOS staff members. The staff will provide orientation and staff training, and develop cataloging profiles for each library. Telephone lines and terminals will be installed, and the AMIGOS will become operational line by line during the Summer and Fall.

The Committee suggests that the Council should contract with TAGER to provide the following services: fringe benefits for network staff, auditing and income tax reporting, bookkeeping and salary checks for network staff, and consultation on specific projects. These contracts should run until November, 1976 when they should be reviewed along with other aspects of the network.

Housing of AMIGOS

The Committee considers the Dallas area to be the best location for the offices of the new network because of the central location and the ease of

transportation and communication with the participating institutions in the Southwest.

The Excellence in Education Foundation (EEF) has offered the use of a 1200 square feet furnished office suite at an attractive rental rate. This suite would provide adequate office space for the projected network staff. The Committee recommends the acceptance of this offer because the offices are adjacent to the IUC/TAGER Office, the rental rate is very reasonable, and the offices are available for immediate occupancy and can be used into the foreseeable future.

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AMIGOS BIBLIOGRAPHIC COUNCIL

EXECUTIVE DIRECTOR

The Executive Director of the AMIGOS Bibliographic Council (ABC) is responsible for the administration of a central organization to direct the development and management of a southwestern regional library cooperative bibliographic network (ABC) that will provide a wide variety of computer based services to all types of libraries. The Executive Director's responsibilities include planning, budgeting, implementing, coordinating, controlling, evaluating and monitoring a full range of computer based library services and operations, consistent with the overall objectives and goals of the ABC. The most immediate objective is the implementation of the extension of the OCLC automated cataloging system to libraries in the southwestern United States.

Qualifications include an M. L. S. degree from an ALA accredited program, ten years of professional experience and demonstrated successful performance as a practicing librarian in positions of progressively greater administrative responsibility. In addition, the Executive Director shall have an extensive knowledge of librarianship with strong interest in all types of libraries and library networks. Evidence of significant professional accomplishment is desirable. Previous relevant experience must include: budgeting, program planning and implementation, library automation and/or library networks and data processing: working and administrative aspects. The ability to communicate effectively is essential. Experience with the OCLC system or similar system is highly desirable. Position available immediately.

Benefits include Social Security and TIAA retirement plans, life and health insurance, holidays, vacation and sick leave.

Please send letter of application and resume, names of three professional references and salary requirements to:

Mr. James T. Dodson
Director of Libraries
The University of Texas at Dallas
Post Office Box 643
Richardson, Texas 75080

An Affirmative Action, Equal Opportunity Employer

or

at ALA Midwinter Meeting contact:

Merle Boylan, James Dodson, Barbara Gates
Jean Gibson, Paul Parham

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APPENDIX D

Excerpts from "Introduction to Computer-Based Data Processing for Libraries: A Syllabus and Guide for Continuing Education: by Dr. John Corbin

INTRODUCTION TO COMPUTER-BASED DATA PROCESSING FOR LIBRARIES: A SYLLABUS AND GUIDE FOR CONTINUING EDUCATION

Dr. John Corbin
School of Library and
Information Sciences
North Texas State University
Denton, Texas

Prepared For, and Through a Grant From,
the Southwestern Library Interstate Cooperative Endeavor
(SLICE)

January 1975

PREFACE

The idea for this publication evolved out of a series of three workshops entitled "Library Automation and Networking" by Maryann Duggan and the author given in May and June 1974 in Tucson, Phoenix, and Flagstaff, under sponsorship of the Arizona Division of Libraries, Museums, and Archives and SLICE. In September 1974, a modified but basically similar workshop was conducted for the Fort Worth Major Resource Center.

Maryann began urging the preparation of a syllabus and guide for the course/seminar/workshop before the Arizona trips were over. Such a syllabus and guide hopefully could be used in future continuing education courses or seminars to provide content standardization and quality control.

The primary purpose, then, of this publication is to provide a syllabus and guide to a lecturer/instructor for a continuing education course or seminar for library staffs. The objectives of such a course are twofold:

1) To prepare the learner to communicate more effectively with librarians, systems analysts, computer programmers, and others in regard to computer-based systems in libraries;

2) To provide the learner with a background and foundation for further study and work with computer-based systems in libraries.

This syllabus/guide is not intended to be in itself the complete course content; it is rather intended that the lecturer/instructor flesh out and supplement it with additional material and examples as the course progresses. It is a syllabus and guide to the content of the course only.

The author wishes to thank the Arizona Division of Libraries, Museums,

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and Archives for their initial enthusiasm for an automation and networking workshop, where the idea for a syllabus and guide began, and SLICE for its generous support. Particular thanks must be given to Maryann Duggan for her positive, tireless encouragement.

John Corbin
Denton, Texas
January 13, 1975

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COMPUTER OVERVIEW

Unit Objectives

The objective of this unit is to provide the learner with an introductory computer overview. Upon completion of this unit, the learner should be able to:

1) Define a computer;

2) List, define, and describe three methods of distinguishing between computers;

3) List, define, and describe the elements of a computer system;

4) List, define, and describe the six basic components of a computer system;

5) Draw and discuss a model of the computer system;

6) Describe some common computer system configurations;

7) List, define, and describe some modes of computer operation;

8) List come computer capabilities and limitations.

Computers

A computer is a device or a machine capable of solving problems by accepting data, performing prescribed sequences of operations on the data, and supplying the results of these operations. The type of computer of interest here is the digital computer, which operates on data expressed as digits in the decimal or some other numbering system. Digital computers are commonly used in scientific, business, and library applications were data

and information are expressed as discrete numbers and characters.

There are several dozen computer manufacturers in this country; many specialize in scientific and very small machines. International Business Machines (IBM), Honeywell, the UNIVAC Division of Sperry Rand, the National Cash Register Company (NCR), Burroughs Corporation, Control Data Corporation (CDC), Xerox Data Systems (formerly Scientific Data Systems), and others manufacture digital computers.

Computer Classifications

Due to the wide variety of machines available, some methods of differentiating among computers are essential. Some methods are:

1) By generation;

2) By purpose;

3) By storage capacity.

Classification by Generation

Computers can be classed according to their period of historical development; these eras are:

1) First generation;

2) Second generation;

3) Third generation;

4) Fourth generation.

First-Generation Computers.--First-generation computers, which were designed specifically for scientific work, took a great deal of space, employed vacuum tubes, generated much heat, and required considerable air conditioning for efficient operation. This generation lasted from about

1954, when the first commercial installation of a computer took place, until around 1959.

Second-Generation Computers.--Computers in the second generation were introduced around 1959-1960. They used solid-state components such as diodes and transistors and were designed primarily for non-scientific use. The IBM Series 1400 computers were the most popular models of this generation.

Third-Generation Computers.--In 1964, IBM introduced its System/360 Series and thus ushered in the third-generation computer. This equipment used microminiaturized components such as integrated circuits, which resulted in improvements in speed, cost, storage capacity, and size.

Fourth-Generation Computers.--In 1970, IBM, NCR, Burroughs, and others introduced new computer lines which some claim to be fourth-generation machines, or, at least three-and-a-half generation. These models, such as the IBM System/370 Series, continued microminiaturization of components, but there were no major technological breakthroughs that characterized the beginnings of previous generations of computers.

Classification by Purpose

Computers can be considered either special-purpose or general-purpose machines.

Special-Purpose Computers.--Special-purpose computers are designed to solve a restricted class of problems or, in some cases, only one specific problem. For example, a computer can be custom-made with the sole purpose of solving complex navigational problems on an atomic submarine. The machine can perform this function economically, quickly, and efficiently; however, it lacks versatility in that it is inflexible and can not be used to perform

other operations. Most special-purpose computers operate from fixed, internally-stored programs or built-in circuits.

General-Purpose Computers.--General-purpose computers are designed to solve a broad class of problems. This type has the ability to perform a variety of operations, controlled by sets of instructions or programs which can be stored inside the machine, then removed when others are required. The trade-off for this flexibility and versatility is a loss of speed and efficiency; most people are willing to accept this.

Classification by Storage Capacity

Computers can arbitrarily be classed according to their relative storage capacity and computing power. These classes include:

1) Microcomputers;
2) Minicomputers;
3) Small computers;
4) Medium-sized computers;
5) Large-scale computers.

Microcomputers.--An emerging type of computer is known as the microcomputer. These are extremely small, general-purpose, programmable devices which can be used in measuring scales, games, point-of-sales devices, controlling appliances in homes, businesses, and libraries, and in performing control and monitoring operations in automobiles.

Minicomputers.--Minicomputers also are very small, general-purpose machines that perform the same functions as other larger computers. They usually are quite fast in computation but have very limited input, output, and storage capacities. Minicomputers might be used for general-purpose

tasks that do not require considerable access to large masses of stored data, connected to larger computers and acting as input and output and message-switching terminals, and for educational purposes.

Small Computers.--Small computers are successors to the punched card machines used before computers came into general use. This size of computer might have a storage capacity up to about 16,000 positions or characters of data.

Medium-Sized Computers.--Medium-sized computers are faster, have from around 16,000 to 65,000 positions of storage capacity and have more optional equipment available.

Large-Scale Computers.--Large-scale computers are the fastest type of computer, with up to several million positions of storage capacity. They are very fast and versatile.

Elements of a Computer System

A computer system has three aspects or elements:

1) Hardware;
2) Software;
3) Peopleware.

Hardware

The physical equipment of a computer system, such as its mechanical, magnetic, electrical, and electronic components are referred to as hardware.

Software

Software refers to the collections of computer programs or sets of

instructions, manuals, circuit diagrams, operational procedures, and other documents associated with computer hardware.

Peopleware

The systems analysts, programmers or coders, machine operators, and others that are essential to the operation of a computer system are referred to as peopleware.

Computer Organization

A digital computer system has six basic components (Illustration 3):

1) Input;
2) Internal storage;
3) Control unit;
4) Arithmetic-logic unit;
5) Auxiliary storage;
6) Output.

Input

Input into a computer system can be by punched card, magnetic tape, paper tape, optical characters, or by several other media. These all contain data in a form which is acceptable to the computer; that is, in a machine-readable form. Data in input media are converted into electrical signals by an input device such as a punched card reader, magnetic tape unit, optical character reader, and so on. Some input devices, such as the typewriter terminal, enable direct input of data into the computer without an input medium such as punched cards, magnetic tape, etc. All data leaving

the input device, whatever it may be, are in the form of coded electrical pulses or signals, which are transferred first in most computer systems to an input buffer.

An input buffer is a temporary storage device used to compensate for the difference between the input rate of the relatively slow, usually electromechanical input device and the rest of the computer, which is capable of work at much faster speeds. Thus, an input device will transfer data first into the buffer at a slow speed. When the buffer is full, the data is transferred into the computer at a much faster rate.

Central Processing Unit

The internal storage, control, and arithmetic-logic units comprise the central processing unit or CPU of the computer. The CPU, which is sometimes called the central processor or main frame, is the heart of any computer system.

Internal Storage Unit.--Data and instructions fed into the computer go directly into an internal storage unit. The function or purpose of this storage unit is to hold data and instructions until they are needed for processing, during processing, or awaiting the output function.

Control Unit.--The control unit moves instructions from storage, interprets them, and directs and coordinates the other components of the system to carry out the instructions.

Arithmetic-Logic Unit.--All calculations (addition, subtraction, multiplication, and division) and comparisons of data are prepared in the arithmetic-logic unit. Data are moved from storage into this unit, where they are manipulated and then returned to storage.

Auxiliary Storage

Auxiliary storage usually is not an integral part of the computer, but is directly connected to and controlled by it. This type of storage supplements the internal storage unit of the central processing unit and provides a mass storage capacity to the system. Examples of auxiliary storage are magnetic disks and magnetic tape.

Output

Lastly, the computer must present the results of its processing to the user; this is known as the output function. Output involves converting processed data to a form or language compatible with an output medium such as punched cards, paper tape, magnetic tape, etc., and recording the information through an output device such as a punched card punch, paper tape punch, magnetic tape unit, printer, visual display terminal, etc. In most cases, an output buffer similar to the input buffer and with the same functions is used between the central processing unit and output devices.

Computer System Configurations

All computer systems are similar in that they perform the basic functions described above. However, individual computer system installations can have different amounts of equipment in different arrangements. The pieces of equipment in a specific computer system are referred to as a configuration. Although the individual pieces of equipment appear to be independent of each other, they are actually all connected by electrical cables, usually under a false floor of the computer room.

A "typical" computer configuration might consist of, for example:

1) A central processing unit;

2) A punched card reader/punch;

3) Several magnetic tape units;

4) Several magnetic disk units;

5) An output printer.

In addition, the system will have a control panel and a typewriter console for direct communication with the system. More and faster equipment can be added as necessary or as funds become available.

Modes of Computer Operation

There are several modes of computer operation, including:

1) Dedicated, shared, and timeshared;

2) Off-line, on-line, and interactive.

Dedicated, Shared, and Timeshared Operation

A general-purpose computer which is committed, obligated, allocated, or otherwise devoted to a specific application or a series of related applications is called a dedicated computer. A computer used only for library applications and nothing else would be an example.

A shared computer is used for applications of various different users; for example, the library, the water department, the tax department, the police department, etc. This mode of operation provides economy of cost, but there is a danger of a lower priority for computer use for certain users such as the library.

A timeshared computer is one which two or more functions are carried out during the same time period by allocating small portions of the total

time to each function in turn. It enables many to use the computer at the same time. This mode of operation is also called multi-programming.

Off-Line, On-Line, and Interactive

Equipment or devices which are detached from and operate independently of the central processing unit of a computer are said to be off-line. When equipment or devices are directly connected to and operate under control of the CPU, they are referred to as being on-line.

When a user is able to enter data into a computer system on-line through some terminal device such as a typewriter or visual display device and receive responses back immediately in a conversational mode, the result is called interactive operation.

Computer Capabilities and Limitations

Computer Capabilities

There are some capabilities of the computer which should be considered:

1) The computer can operate at high speeds. Its speeds are measured in milliseconds (one one-thousandths of a second), microseconds (one one-millionth of a second), and nanoseconds (one one-billionth of a second);

2) The computer can perform large volumes of repetitive, time-consuming operations accurately over a long period of time;

3) The computer can store large amounts of data in its internal storage unit and its auxiliary storage devices. It can store up to several millions of characters in its main storage and many millions in auxiliary storage and retrieve any or all of the stored data upon request;

4) The computer can process one job at a time or several jobs almost simultaneously. When several jobs are to be handled, instructions for each are stored in different sections of

the computer's storage units. During processing, control is switched from one set of instructions to another so fast that one would get the impression that all jobs are handled simultaneously;

5) The computer can direct itself in a predetermined manner. This is why it is referred to as an automatic computer. Once it has been provided with data to be processed and instructed what to do, the computer can process the data without further human intervention.

6) The computer can receive data from remote locations, process the data, and transmit them back to a user at a remote location;

7) The computer can choose among alternatives in a way that is equivalent to making a decision. It makes comparisons and then follows a path dictated by the results of the comparisons;

Computer Limitations

Computers have their limitations, just like humans, because they were designed by humans. In all cases, the computer is subject to human direction and control. Some computer limitations are:

1) The computer can not perform without a program. It must have a set of instructions for every application or job it is to perform. The machine does what it is programmed to do and nothing else. Every operation or decision to be made by the computer must be foreseen in advance and the alternatives specified in the program. While it can perform at incredible speeds, it can not perform any operation that can not be performed by man;

2) The computer can operate only on data. It can accept data, process them, and communicate results; but the computer can not perform direct physical acts such as bending metal or turning pages of a book. However, processed data can be used to control other machines which will bend metal or turn pages;

3) The computer can detect, but generally can not correct, inaccurate data fed into it. There is an acronym used to describe this situation: "GIGO," or, "garbage in, garbage out." The result of computer processing is only as accurate as the input placed into the system.

DATA COMMUNICATIONS

Unit Objectives

The objective of this unit is to introduce the learner to the basic concepts of data communications essential to some computer-based library data processing systems. Upon completion of this unit, the learner should be able to:

1) Define data communication;

2) List, define, and describe the steps or stages of data communication;

3) List the common data communication codes;

4) Define a communications channel;

5) List, define, and describe the carriers, types, transmission modes, and grades of communication channels;

6) List, define, and describe the equipment commonly used in data communication;

7) Define a communications network;

8) Describe the common communication network configurations.

Data Communication

During the early years of computer development, users had to bring their problems to the machines, wait, and then carry away the results. Computer technology now is being converged with telecommunications or data communications techniques, which enables users to use computers from a distance,

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without taking their problems to the computer. Now, data can be captured at its source in a business or in a library, transmitted to a computer which may be blocks, miles, or thousands of miles away, processed by the computer, and then transmitted back to the source. Usually, the user is unaware that others are also sharing the computer at the same time.

Data communication, then, is defined as the interchange or transfer of data or messages from one point, person, or equipment to another over communications channels.

Steps of Data Communication

The process of sending or transmitting data from one point to another requires five general steps or stages (Illustration 35):

1) Data input;
2) Signal conversion;
3) Data transmission;
4) Signal conversion;
5) Data output.

Data Input.--Input into a communications system is accomplished by entering data to be transmitted from a remote point to a distant computer into a device called a transmitting terminal. This terminal will accept data entered in a machine-readable form such as punched cards, punched tape, magnetic tape, or entered manually through a keyboard.

Input data are translated into electronic digital signals. An input control unit receives the signals and stores them temporarily in a buffer device (not all terminals have buffers, but most modern ones do). An error control unit might be used to detect, indicate, and possibly correct errors

that might occur during transmission.

Signal Conversion.--Data sensed from punched cards, punched tape, magnetic tape, or from keyboarding are in digital form; that is, in the form of coded patterns of electrical pulses in "bit/no-bit" patterns representing characters of data. These digital signals must be converted or modified into analog signals suitable for transmission over communications channels or links. This conversion process is called modulation.

Data Transmission.--Data in analog form are transmitted over communications channels, circuits, lines, or links.

Signal Conversion.--When the analog signals are received at the other end of the communications channel, they must be converted back into digital form. This process of signal conversion is called demodulation.

Data Output.--The same type of device which served as a transmission terminal can serve as a receiving terminal. Data can be collected in the same medium as was used originally at the beginning of transmission or into another medium. Data can be transmitted directly into internal storage for processing, also.

Data Communication Codes

A data communications system may use several different codes; some common ones are:

1) The Baudot code, which uses five bits to represent each character;

2) The ASCII 7-level codes, with provision for a compatible 8-level code. The 8-bit code contains 128 characters, 34 control symbols, and a number of other graphic characters;

3) The binary coded decimal or BCD code;

4) The Extended Binary-Coded Decimal Interchange Code (EBCDIC);

5) The Hollerith code.

Communications Channels

Communications Carriers

Communications channels are the paths over which data can be transmitted from point to point. Some organizations own and operate their own private communication channels, but most utilize those of a common carrier.

A common carrier is a public utility company that is recognized by an appropriate regulatory agency such as the Federal Communications Commission (FCC) as having a vested interest and responsibility in furnishing communications services to the general public. Examples are the American Telephone and Telegraph (AT & T); Western Union, General Telephone, and others. Other smaller carriers include Microwave Communications, Inc., Datran, Tymshare, etc.

Types of Communications Channels

Some communication channels provided by the common carriers which are used for data communication are:

1) Telegraph lines;
2) Telephone lines;
3) Radio links;
4) Coaxial cable;
5) Microwave;
6) Satellite.

Telegraph Lines.--Telegraph lines are not too well suited for transmission of data for data processing equipment, but they are often used for digital data transmission with paper tape punches and readers.

Telephone Lines.--Usually, ordinary telephone lines can supply all the data communications needs of a library.

Radio Links.--Radio signals can be used to transmit or broadcast digital information. Any radio set equipped to receive the broadcast frequency can tune in on the transmission. However, this method is not commonly used due to the high cost involved.

Coaxial Cable.--A coaxial cable contains a number of circuits within a protective sheath and can carry many times the capacity of ordinary telephone lines.

Microwave.--Microwave is a type of broadcasting of very high frequency radio signals. Parabolic or dish antennas mounted on high buildings or towers are used to catch the signals. Microwave signals do not bend with the curvature of the earth, so the antenna must be spaced close together in a line-of-sight arrangement.

Satellite.--The newest telecommunication development is the communications satellite, which is an object placed in earth orbit to receive signals from one point and retransmit them to different points.

Transmission Modes

There are three modes of operation for communication channels:

1) Simplex;
2) Half-Duplex;
3) Full-Duples.

Simplex Operation.--A simplex channel can transmit only in one direction. This type is used, for example, for a remote device which can receive but not transmit. It is also called "one way only" operation.

Half-Duplex Operation.--A half-duplex channel can transmit in both directions but only in one direction at a time. This is also called "two way alternate" operation.

Full-Duplex Operation.--A full-duplex channel can transmit in both directions at the same time, using two channels. One channel is equipped for transmission in one direction, and the other, in the opposite direction. This is also called "two way simultaneous" operation.

Grades of a Channel

The grade of a channel indicates its capacity to transmit data, usually measured in terms of bandwidth. Bandwidth refers to a range of frequencies which a channel can transmit, measured in cycles per second or hertz (hz). The bandwidth of a channel should be approximately twice the number of bits to be transmitted per second. For example, if it is necessary to transmit data at 1,200 bits per second (also called baud), then a channel with a bandwidth of 2,400 hz will be required.

The simplest method of classifying the grades of communications channels are as:

1) Low-speed;
2) Medium-speed;
3) High-speed.

Low-Speed Channels.-- Low-speed or narrow-band channels, which were originally developed for teletypewriters, are the narrowest or the lowest-grade channel, capable of transmitting data up to 300 bits per second. Typical speeds are 45, 75, 110, 150, and 300 bps, depending upon the service used. Examples of services for this grade are the Teletypewriter Exchange Service

or TWX of AT & T (now sold to Western Union) and Western Union's own TELEX system. Data can be transmitted by teletypewriter on-line to the computer, or, they can be punched in paper tape and transmitted to the computer or to another device.

When a subscriber to a communications service such as TWX can transmit data to any other subscriber by dialing a central operator who makes a connection, this method is called a switched service. When a line remains connected between its terminal points for the duration of a lease, it is referred to as a dedicated line.

The subscriber of a switched service pays for line use based on airline distance between two stations and the connect time between them. For the dedicated line, a monthly charge is made. These rates of service, which are regulated by the FCC, are called tariffs.

Medium-Speed Channels.--Medium-speed or voice-band channels are used both for human voice and for data communications. Typical transmission rate is from 300-9,600 bits per second. There are three types of services available:

1) Private or leased lines. These are similar to dedicated lines, in that the channels remain connected for the duration of a lease. Private lines are leased on a monthly basis with unlimited usage. These lines can be conditioned, which is a process by which equipment is added to the line which maintains the quality of transmission to a certain standard of permissible error rate;

2) Dial-Up or public switched. This type is currently the most commonly-used method of transmitting data. A channel is available as long as a connection is made, and payment varies according to mileage, time of the day or night, and duration of connect time. The average transmission speed is usually from 2,000 to 2,400 bits per second, but the telephone company does not guarantee the quality of transmission;

3) Wide Area Telephone Service (WATS). This is a pricing arrangement for users with a high volume of voice or data transmission over long distances. Subscribers can use the channel as much as is desired in a predetermined geographic area for a flat monthly fee. If the monthly volume of transmission exceeds 50-70 hours per month, WATS is more economical than dial-up services.

High-Speed Channels.--High-speed or broad-band channels are used for communication requiring high data transfer rates. They are usually composed of groups of voice-grade channels which can carry voice, computer data, or facsimile signals. Over 50,000 bits per second can be transmitted over switched connections and up to 250,000 bps over private-line channels. Some modern broad-band facilities can transmit over one million bps. The facilities for this type of transmission normally are either microwave or satellite.

Communications Equipment

Terminals

A wide variety of terminal devices can be used to transmit data over communications channels, both to and from a computer or other machines, including:

1) Visual display units;
2) Typewriter-like keyboards;
3) Typewriters;
4) Printers;
5) Magnetic tape units;
6) Magnetic disk units;
7) Punched card readers/punches;
8) Optical document readers;

9) Paper tape readers/punches;

10) Badge readers.

Modems

The device which converts or modifies digital signals into analog signals for proper transmission over communication channels is called a modulator. After transmission over channels, analog signals must be converted or modified back into digital signals. The device which performs this function is called a demodulator. Usually, both modulation and demodulation are combined in one piece of equipment called a modem, which is a contraction of modulator-demodulator (also referred to as a data set). Modems or data sets are available from most of the common carriers for use with a wide variety of communication terminals.

Multiplexers

A multiplexer is a piece of equipment which accepts inputs from several terminal devices, combines their signals, and then transmits them together, simultaneously, over one common communication channel (Illustration 36). A similar unit at the other end of the transmission link will separate the signals for further processing. Multiplexing enables a number of low-speed or low-activity terminals to have economical access to a central processing unit by sharing a single communication channel.

Concentrators

A concentrator, which is similar to a multiplexer, allows only a portion of the terminals connected to it to transmit their data over the

available lines at one time. The concentrator acts as a switching device that polls one terminal at a time. Whenever a channel is idle, the first terminal ready to send or receive gets control of one of the channels and retains it for the duration of its transaction. This process is called polling.

The concentrator continues to poll the other channels in sequence until another terminal is ready to transmit. Each terminal has a code address by which it identifies itself when it requests transmission and to which it responds when addressed by the central processing unit. Whenever a terminal is engaged in using the channel, the channel is unavailable to the other terminals.

Communications Processors

When a computer system has a high volume of remote terminals using its central processing unit, a device called a communications processor may be utilized. Such a device can handle incoming and outgoing messages; message queues and priorities; error checking; routing messages into the cpu; etc. Thus, the central processing unit itself is relieved of these functions.

Communications Networks

A communication network is a number of points or nodes interconnected by communication channels which can be used for the exchange or transfer of data or information. Usually it is desirable that a communications channel be bi-directional; that is, each point or node should be able to transmit as well as receive messages and thereby act in a conversational mode throughout

the network.

When a number of points or nodes are interconnected with communication channels so that each can communicate with every other one, the resulting configuration is referred to as a non-directed network (Illustration 37). Another configuration which is more common is called a directed network (Illustration 38). In this case, each node is connected by only one communication channel to a special type of node called a switching center. Each node uses its channel to transmit messages to the switching center only; the switching center then relays, refers, or switches the message to the proper node in the network for completion of the transaction.

Often, nodes of a network wish to communicate with other networks or with special nodes outside the network. When nodes in a non-directed network wish to communicate with a special node or nodes in another network, separate communication channels must be established for each node to the other nodes outside the network. In a directed network, a node would first transmit a message to its switching center, which would in turn relay that message outside to a node or nodes in another network.

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APPENDIX E

"Telecommunication in Library Networks; A Five Year Projection"

by

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TELECOMMUNICATION IN LIBRARY NETWORKS

A Five Year Projection

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TELECOMMUNICATIONS IN LIBRARY NETWORKS: A Five Year Projection

Julius S. Aronofsky and Robert R. Korfhage

During the past decade numerous computer and data communication networks have developed throughout the country. Some of these are commercial ventures aimed at providing general computing services; others are government-funded networks with the dual aims of providing service to educational or governmental agencies, and of developing prototype network designs. Some few of these networks have been developed with the purpose of providing some facet of service to libraries. The emphasis in this report will be on the role of telecommunications in these emerging library networks.

Evidence to date indicates that the telecommunications costs for library service networks comprise a substantial portion of the operating expenses. Thus in the development of a network, efficient use of available telecommunications technology can have a major impact on the operation and economics of the network. It is our purpose in this paper to examine the impact of telecommunications on library networking, and to project a reasonable evolution of library networks over the next five years, pointing out some of the factors in future designs that must be considered by formulators of policy and planners of networks. Specifically, we intend to assess the present importance of telecommunications for library information processing networks; to project the growth and structure of regional and national library networks, with particular attention to the region covered by the Southwestern Library Association; to assess the role of telecommunications in future library network growth; and to stress the importance of developing guidelines for the rational growth and development of library information networks.

ASSUMPTIONS

Based on the current state of information networks, it is reasonable to make several assumptions.

1. During the coming five years, computers will be used increasingly for library staff functions. We observe that a recent study [1] identifies eleven staff functions that lend themselves nicely to computerization since they involve the handling of massive data files or simple, easily programmed manipulations of the data. Primary among these projected applications are two that are already available to a large number of customers: production of catalog cards, and serials control. Also on this list we may include

control of archival material
book purchasing
circulation control
production of indices
information retrieval
inventory
overdue notification
records
computerized registration.

Many of these latter applications are currently being computerized on a local basis and by a number of the intrastate networks identified in the Westat report [2, pp. 200-203].

While the cost effectiveness of computerization on a network scale has yet to be established for these functions, there seems to be no doubt that the increasing volume of information resources and the decreasing cost of computer and telecommunication equipment and services will drive a library network system to the point of being cost effective well within the next five years.

2. Effective computer use within a library will be largely based on the processing of terminal-originated transactions, with a shared data file handled at a service center remote from the local library. Under its current acquisitions policy, the Library of Congress obtains approximately three-fourths of the titles being added to large research libraries, and a substantial portion of the titles cataloged by other libraries [2, pp. 256-257]. Thus the LC acquisitions form a shared data file that many libraries have reason to access. Roughly 45% of this data base is currently available to other libraries through the MARC (MAchine Readable Catalog) magnetic tapes that the Library of Congress produces, and a larger percentage could be made available if funds permitted. The MARC tapes provide about one-third or more of the input to operational shared cataloging systems, the remainder being entered directly by the user libraries. It has been quite thoroughly established that the quality and consistency of the MARC records is substantially better than that of the individually produced records. Nevertheless, for some purposes the individually entered records are useful to other librarians, who report that they quickly learn to identify good and poor record sources. Some libraries report that these combined shared cataloging data bases contain 80% or more of the records needed for their card production operations. It is reasonable to assume that a similar figure holds for other library operations as well. Thus there is a obvious potential for economies of scale based on the use of a common data base for large groups of libraries.

Since much of the file manipulation in library work involves the handling (storage, searching, updating, retrieval) of individual records (one catalog card), as opposed to the en masse moving of large subfiles (ten thousand catalog cards), these applications are well suited to the use of interactive terminals, featuring CRTs and optional hard copy capabilities, communicating with the central computer over voice-grade lines.

3. There is a need for service functions to satisfy identifiable multi-state regional interests. Historically, groups of people within neighboring states have banded together to discuss common problems and interests. This has occurred in many fields of interest, including library and information science. The Westat report [2], for example, cites seven regional library associations, thirteen multi-state library consortia, twenty-three regional library cooperatives, and more than one hundred intra-state cooperative efforts that currently exist or are planned. This is a clear indication of the feeling among librarians that, whether because of ease of travel, commonality of interests, or other reasons, there is a need for libraries within a relatively small region to cooperate, largely in a manner that is designed to meet their own regional needs. In any library network design, the regional organizations should play an important role in identifying the perceived needs, and in providing some of the service functions necessary to meet these needs.

4. The stage is being set for rapid growth of information networks. The technology necessary for regional and national information networks is currently available, with much of it in active use for commercially profitable computer networks. While current economics may place some of this technology out of the reach of libraries, the short-range economic structure is rapidly evolving in a manner that makes information networks increasingly feasible and attractive. Further, there has been enough discussion of the network concept, and enough experimentation with the provision of network services that the implementation of such networks is readily accepted by the users.

5. Large libraries are the primary initial candidates for network services. One of the main driving forces for network development is the economy of scale afforded by the processing of large data bases. The large libraries are most in a position to react to the perceived economies associated with common processing of large data bases via an information networ

Thus we anticipate that the initial users will be these large libraries. Naturally, "large" is dynamically defined, for as network services become less expensive to provide, smaller libraries will find it within their means to participate, and will find that they too can enjoy the resulting economies.

6. A planning horizon of five years is reasonable and appropriate for this study. Projections relating to computing, especially long-term projections, have historically been notoriously unreliable when compared to reality. It serves the purpose of this report to concentrate on the known technologies and applications that can readily be included in the expansion of library networks. Even with this limitation, long term projections are unreliable because of the influence of non-technical factors such as customer acceptance of services, and the general economy. Thus we face the task of choosing a planning horizon that is reasonably short, to improve accuracy, yet long enough that it extends beyond projects that are currently under development. The five year horizon fits these criteria well, especially since there are many examples of new technology that will be available within this horizon: mini- and microcomputers, digital telecommunications, packet switching, satellite communications; and many library applications that are currently being tested, as we have indicated above. These developments will be discussed later in this report.

CURRENT DEVELOPMENT OF LIBRARY NETWORKS

The development of a library information network brings together the technologies of computers and telecommunications on the one hand, and the needs and practices of the libraries on the other. To provide a base for projections of network development, we examine the current interaction of these three disciplines. In this section we discuss two of the emerging networks, OCLC and BALLOTS, and the utilization of OCLC services in the Southwest.

As stated above, computer processing for basic library functions on a local scale is a mature reality in many places. For the past decade many libraries have enjoyed computer-produced shelf lists and serials catalogs, computer control of circulation, and a variety of other functions that can be readily handled by computer. Extension of this developing milieu of computer processing to a multi-library network presents no serious technical problems beyond that of availability of compatible data files and some standardization of the processing functions, but will focus attention on the need for effective control of the quality and cost of services, and the need for a sound pricing structure.

In order for an individual library to make effective use of the variety of services that may be available over a library network, it is important that these services are based on compatible data files. Compatibility of data files can be provided by the MARC tapes supplied by the Library of Congress, and by the use of MARC formats in generating other records for a data file. Although condensed records as used by some service centers have certain advantages, they can impact the compatability of data files as different groups choose different condensations. The resolution of this situation could be either the adaptation of a common standard for condensation, or the implementation of automatic procedures for relating a condensed record to the corresponding full record.

Perhaps the most successful service group is the OCLC (Ohio College Library Center) system, which provides a service based on the production of catalog cards to approximately 275 participating libraries. Currently under development by OCLC are serials control services and technical processing services for all materials, both of which will be available to users within the next year or two.

Some historical information on OCLC is appropriate. The network was initiated in 1967 with the objective of providing computerized cataloging services to academic libraries in Ohio. An original group of forty-nine libraries was connected to the OCLC computer in Columbus by voice-grade lines beginning in August 1971. The primary service performed by OCLC

consists of on-line cataloging and off-line catalog card production, based on MARC tapes modified to suit their needs. The OCLC data base consists of over one million records, approximately half of which are from the MARC tapes. It is growing in excess of 7600 records per week. To provide this service required innovation in both terminal design and computer software. This service has since been extended to public libraries in Ohio, and to a number of out-of-state groups, including IUC, the Interuniversity Council of the North Texas Area. Figure 1 shows the geographic distribution of OCLC users as of 1 September 1974.

The BALLOTS (Bibliographic Automation of Large Library Operations using a Timesharing System) project at Stanford University has approached library networking from a different direction. Rather than provide a rather limited service to a large number of libraries as OCLC has, BALLOTS has aimed at providing broad services to a single university library and its users. Thus it includes the cataloging functions of OCLC, and eight separate technical processing functions, including ordering, claiming and receiving, and the generation of the necessary forms and files. In addition, the BALLOTS files are available for public bibliographic search through SPIRES (Stanford Public Information and Reference System). The BALLOTS data base consists of approximately 300,000 records, roughly three-fourths of which are from modified MARC tapes. It is growing at a rate of 3000-4000 records per week. BALLOTS is now extending its services to libraries throughout California, and exploring extensions on a national scale. Thus both BALLOTS and OCLC are nationally oriented networking services aimed at the same goal of broad services to a larger number of libraries.

In addition to these networks, several other efforts are under way that probably will grow into regional or even national networks. We mention, for example, the Washington Library Network, based at the Washington State

Library. More than twenty regional networks are currently under development, either independently or allied with one or more of the national efforts. These include NELINET, serving the New England region; SOLINET, in the Southeast; and the IUC/OCLC network, serving the North Texas area. Many of these are identified in the Westat report [2, pp. 205-209].

The IUC/OCLC network is of particular concern in this report, both because it exists and is a prime effort within the region covered by SLICE, and because projections for this network suggest that it may serve sixty-six library sites in five states within the next three years. The present network was proposed by the Library Committee of the IUC, a consortium of fourteen colleges and universities. Thirteen of these institutions were joined by six other academic libraries, three public libraries, a school district library, and the Texas State Library to form the present group of network participants.[1] Each library is a member of the Bibliographic Network Committee, that advises IUC/OCLC on network operation.

The present network configuration consists of thirty-two terminals for the twenty-four libraries, connected by a dedicated, voice-grade telephone line to the OCLC center in Columbus. The terminals used are sophisticated and relatively expensive since they involve a certain amount of memory and logical processing capability. The memory buffer is of sufficient size that at least one full catalog card record may be held at the terminal for editing, before it is transmitted to the central computer. The terminal logic appends control information to any record being transmitted, and identifies and captures incoming records on the basis of their associated

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[1]Austin College, Baylor College of Dentistry, Baylor University, Bishop College, Dallas Baptist College, East Texas State University, Eastern New Mexico University, New Mexico State University, North Texas State University, Southern Methodist University, Texas Christian University, Texas Tech University, Texas Woman's University, University of Dallas, University of New Mexico, The University of Texas at Arlington, The University of Texas at Austin, The University of Texas at Dallas, The University of Texas Health Science Center at Dallas, Dallas Public Library, Fort Worth Public Library, Irving Independent School District Library, Irving Public Library System, and the Texas State Library.

control information. This design has the advantage that a terminal ties up the telecommunication line only while transmitting a buffer load of data. Hence it is possible to attach a relatively large number of terminals to a given line without degrading effective use of any one terminal. However, the expense of each terminal is a deterrent to their widespread adoption. In addition, since there is no guarantee that another network will opt for the same type of terminal design, the use of these terminals may inhibit use of alternative network services.[2] However, it is reassuring to note that the data is transmitted in ASCII, an eight-level code for data transfer adopted by the American Standards Association to achieve compatibility between data devices.

The tentative expansion plans for IUC/OCLC call for service to sixty-six libraries via 127 terminals feeding into five dedicated voice-grade lines from Amarillo (serving New Mexico and Arizona), Waco, Dallas, Huntsville (serving southeast Texas), and Little Rock to Columbus. It is assumed that approximately 40% of each terminal's use will be for non-cataloging purposes, primarily for serials control and technical processing.

COMPUTER INDUSTRY

The second industry considered in this report is the computer industy. Developments in this area have been fairly conservative in recent years, being mainly a refinement of prior concepts, without major surprises or shifts in direction. Nevertheless, it is evident to one who examines the industry that several trends and developments strongly impact the shaping of library and information networks.

For much of the past decade there has been an increasing emphasis on the use of remote terminals as input and output devices for computers. Much of this work has been related to systems involving terminals that are locally

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[2]For example, the terminals used by BALLOTS are of different manufacture, have twice as much associated memory, and logic programmed to serve the functions and formats of that particular system.

remote, and may be"hard-wired" to the computer, or attached via local telephone lines. The natural extension of this work has been to allow access to the computer from distant terminals via long distance lines. Achievement of this access was no simple feat, but involved the development of high-speed modems and conditioned telephone lines, as well as solution of the organizational problems of interfacing a user, a computer service supplier, and often more than one telephone company. Solution of these problems ultimately led to the development of commercially viable nation-wide data processing networks. Examples of such services offered by private firms include the MARK III network of General Electric, Control Data Corporation's CYBERNET service, and the network of TYMSHARE, Inc. These networks and others provide computing service to a large region, the entire nation, or even internationally.

The development of not-for-profit academically oriented networks has faced a different set of problems, including that of financing such a venture. The federal government, over the past decade, has financed a number of regional network developments, thus enabling them to concentrate on solving the major problems such as technical difficulties and chauvinism that have threatened their existence. Examples of these networks include:

Dartmouth - serving Dartmouth College, high schools, and other colleges in New England

MERIT - serving the University of Michigan, Michigan State University, and Wayne State University, plus a few smaller colleges in Michigan

TUCC - serving colleges and universities throughout North Carolina

OCLC - now serving academic and public libraries throughout the country.

The first three of these are among more than twenty-five regional computer networks supported initially by the National Science Foundation [3].

The focus of these networks has been to provide computing resources for colleges and universities, and, to some extent, for high schools. These networks have had neither the ability to set commercial rates for profitability, nor the massive funding that is associated with major scientific research efforts. Thus once started, they have had to rely heavily on their own internal momentum for continued survival. In this, some of the networks have been highly successful and others have failed. Failure has been primarily due to organizational difficulties rather than to technical problems.

The present state of development is such that any regional data processing service, even a not-for-profit one, can reasonably consider expansion to a national market. There are no technical obstacles to such an expansion, although any effort in this direction may well run into organizational, financial, or market acceptance difficulties.

Increased reliance on advanced solid-state technology in the design of computers and terminals is playing a key role in the development of network information processing capabilities. This technology has produced machines of unprecedented reliability, with accompanying dramatic decreases in physical size and increases in speed. The development of inexpensive, sophisticated mini- and microcomputers has been a direct result of achievements in solid-state technology.

Minicomputers are physically small general purpose computers, with capabilities comparable to those of the large commercially available computers of a decade ago. The IBM System/3 and the Digital Equipment Corporation's PDP-8 and PDP-11 are among the best known of the minicomputers. Such a computer can be readily interposed between computer terminals on one side, and larger computers or digital networks on the other, performing vital connection and switching functions. In addition a minicomputer has the capability to perform simple logic and editing functions on the data

before it is entered into the network, and to identify terminal users and monitor their use.

The current end product of computer miniaturization is the microcomputer, whose entire logic circuitry resides on one or a few semiconductor chips. Microcomputers are most evident as hand-held calculators, priced from $20 to $800, and desktop programmable calculators, with prices ranging up towards $4,000. Currently one of the most sophisticated of the hand-held computers is the Hewlett-Packard HP-65, which for less than $1,000 provides the user with the capabilities of a small stored-program machine. Obviously such ultra-miniature computers, with increased memory and processing functions, could be placed within the framework of present terminal devices. Thus we observe that it is entirely practical to expect terminals in the near future to be increasingly "intelligent", and to be capable of taking over many of the functions currently relegated to minicomputers or to the central network computer.

The above developments are primarily direct extensions of current technology and theory. Other, more exotic, developments are also occurring within the computing industry. Primary among these are the development of ultra-mass storage, and of unorthodox machine architectures. Presently available high-speed computer memories rely heavily on magnetically-based solid-state devices for the storage of data. Other storage media are conceivable, and several types are under development. These include photographic storage devices, laser and holography techniques, and even experimentation with biologically-derived storage devices. Such experiments have resulted in operating devices capable of storing one trillion bits of information - rougly equivalent to 10,000 400-page books, or 16,000,000 catalog cards.

Aside from improvements in size and speed, the basic architecture of most commercially available computers today remains essentially the same as it has been for over twenty years, based on concepts put forth by John von Neuman in the 1940's. In recent years, however, alternative computer architectures based on essentially different principles have been studied. These include the development of computers that handle parallel data streams, and of computers that operate "associatively," that is, locating data directly by name or properties, rather than by the specific machine addresses at which the data are stored.

While neither ultra-mass storage nor alternative architectures have had much impact on currently available computers, we may safely predict that within the next five years some of these developments will come out of the research laboratories into the production lines for computers.

TELECOMMUNICATIONS INDUSTRY

The final and most important industry for us to consider is the telecommunications industry. Here, as in computers, there have been many new developments within the past few years. The efficiency of transmission cables has been improved; microwave data transmission facilities have been designed and constructed; and successful telemetry and transmission techniques from the space program have been adapted to public use in the form of communications satellites having data transmission capabilities.

In contrast to the computer industry, telecommunications is heavily regulated by the FCC and state utility commissions. The interaction between technical developments and government regulations shapes the telecommunication choices that network planners have available.

Development of remote computing has been based largely on the use of commercially available telephone lines for data transmission. This requires the use of modems to convert between the digital data that the computers use

and the analog signals that the transmission lines are designed to handle. In the early stages of this development AT&T supplied low-speed modems to users, and resisted strongly the introduction of more high-speed devices from other vendors. However, in recent years, and at least partially as a result of various FCC and court decisions, high-speed devices have been readily available, and AT&T has joined in the competition to supply these to customers.

The introduction of increasingly higher-speed attachments has had a direct and beneficial impact on the quality of data transmission lines. Ordinary voice-grade lines have been supplemented with transmission lines having various degrees of "conditioning," to assure greater reliability for high-speed data transmission.

The original attitude of AT&T and the other telephone utilities can be attributed largely to the inertia of more than a quarter century of supplying telephone service under protective regulations, and to a view that data transmission was but a very small fraction of their total business. In the 1960's the FCC recognized that a new technological environment had developed, largely from missile and space technologies, and that there was an increased diversity in the market that the telecommunications industry must serve [4]. In a series of historic decisions the FCC totally reversed earlier policies that treated telecommunications as a "natural monopoly," and opened the field to innovation and competition. The Carterfone decision, in 1968,

> scrapped as totally unlawful the traditional ban within the telephone industry against customers interconnecting terminal devices and systems to the telephone network when those equipments are not supplied by or rented from the telephone carriers themselves [4].

This decision directly affected the manufacture and use of modems, terminals, and minicomputers for line concentration and switching.

> Another major response by the Commission was the formulation in 1971 of a policy permitting and encouraging the entry of new carriers seeking to serve the emerging markets and existing but latent submarkets for intercity specialized communications services [4].

This decision allowed the development of private telecommunications utilities, dedicated to digital data transmission and other specialized communication needs. MCI is one of the companies that arose because of this decision, using a microwave link between Chicago and St. Louis for both data and voice transmission. Another company for which this decision paved the way is Datran, using microwave transmission strictly for digital data. By limiting their service to digital data, Datran is able to avoid the need for modems, and hence decrease costs. In addition, Datran has a pricing structure that is based on the amount of data transmitted, rather than the distance, and is aiming at an improvement in reliability of several orders of magnitude.

> A third significant measure taken by the FCC to promote diversity and choice for consumers was the Commission's domestic satellite decision [1972]. By that decision, the Commission opened up the application of communications satellite technology to multiple suppliers of service [4].

At least seven satellite communications proposals have been presented to the FCC as a result of this decision, including applications from AT&T and Western Union, Comsat, and others. As of this writing, only the Western Union satellite is active.

Another development during this same period was the decision in 1969 to revise the tariff structure for private leased lines. Until that time such lines had been available only on a single user, full time basis. But in February of that year AT&T decided to allow a group of users to band together to share a leased line among themselves. This has opened the door for smaller users to enjoy some of the economies of the more high volume Telpak lines, which lease for a rate considerably less than

that of the corresponding number of ordinary voice-grade lines. Note, however, that this revision does not permit one user to lease such a line and then resell time on it.

The final important development in telecommunications during this period has been the introduction of packet-switched networks and the licensing by the FCC of such organizations to provide common carrier service [5]. In such a network, data is transmitted in the form of "packets" that contain the user's information together with destination and control information that is appended automatically by minicomputers that serve as nodes in the network. Thus the user has no direct control over the transmission of his information. It is transmitted from one minicomputer in the network to another in standard sized packets, until it reaches its destination. There the network minicomputer unpackets the information and sends it to the proper terminal or processing computer. By permitting the network to schedule its own message traffic in this manner it is expected that a very high volume of traffic can be handled economically. The outstanding current example of a packet-switched network is the ARPANET, sponsored by the Advanced Research Projects Agency, and connecting more than 40 universities and research laboratories. The network computers used are Honeywell minicomputers, and data transmission rates reach 50,000 bits per second, as compared to 4,800 bits per second that is commonplace using conventional modems and voice-grade lines. One commercially available packet-switched network, Telenet, anticipates operation by March, 1975. At least one other packet-switched network is preparing to enter the business. The emergence of commercial firms offering this technology makes it an attractive alternative for library networks.

It is obvious from the above that there must be very close cooperation --and even integration--between the computing and the telecommunications industries in both technical development and services offered. However, current FCC "policy" tends to keep the industries, particularly as represented by AT&T and IBM, at arms length. Operating under a consent

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decree, AT&T has agreed not to provide computing services for anyone other than its own internal units. At the same time, there is strong resistance to moves of IBM towards entry into the data transmission business. There is common agreement that computer services do not come under the regulation of FCC, but there is a gray area of overlap into the data transmission area. No firm policy has been adopted, either because of an unwillingness to test current practices, or because of current perceptions of policy. It is clear that current practice differs from whatever informal policy there is, particularly in such areas as computer-based conferencing.

Federal policy in relation to computers and telecommunications is still highly fluid. It is clear that the resolution of policy directions in this area will have a major impact on the development and direction of library information networks. The present movement seems to be away from the "natural monopoly" concept, towards a more open and competitive market. Only this past month (November 1974) the Justice Department has announced an anti-trust suit against AT&T. While resolution of this suit will take several years, the attitudes and actions of AT&T and competing telecommunications companies is already reflecting the existence of the suit. Similar major suits have been pending against IBM for several years, and resolution of these is expected within our five-year time frame.

EVOLUTIONARY NETWORK MODELS

Network models range from the relatively simple "star" network through more complex hierarchical network designs, into models that have more flexible and intricate systems of interconnections among the components [6,7,8]. The star network is typified by a single computer to which a number of terminals are directly attached. The need for separate communication lines and separate entry ports into the computer for each terminal limits the effective size of such a network because of low utilization of some of the lines and consequent high cost. The size can be increased to a certain extent by using dial-up

terminals that can share ports and lines, but such a solution imposes the condition that not many terminals can be active at the same time. This model design nevertheless may be feasible if one can establish statistically that the number of available ports and lines exceeds the probable number of active terminals.

In the remainder of this section we consider a series of models related to the development of a library network for the Southwest. The first of these is a relatively simple extension of the star net concept. Subsequent models evolve from this and outline the development of a regional library service center as the network grows.

Model 1: Shared trunk star network. A localized star network, with each terminal having a separate line to the central computer, is a very reasonable initial network for industries and universities whose terminals are all relatively close to the computer. However, as the distance between terminals and the computer increases, the cost of maintaining a separate communication line for each terminal becomes excessive. The next step logically is to develop a network that eliminates the need for so many separate lines by allowing a group of terminals to share a single line. An example of such a shared trunk star network is OCLC, whose member libraries share trunk lines into the central computer at Columbus. Presently IUC/OCLC has thirty-two terminals sharing one line to Columbus. Tentative plans call for five trunks into OCLC, each shared by a maximum of twenty-five terminals. Figure 2 shows one possible such arrangement.

Communication costs for this type of network are affected by the type of line used, the length of the line, the number of terminals per line, and the allocation of the line to the terminals. Land lines are typically available

in voice-grade, with or without various degrees of conditioning, and bundled in a variety of packages strictly for pricing strategies. If terminal attachments to the trunk line are properly arranged, it is often possible to use strictly local lines for these attachments. Thus the per mile line charge is concentrated primarily in the shared trunk. Such a trunk may be shared in the following three ways: (1) by buffering full messages onto the line as OCLC currently does (see page 8); (2) by a frequency division, alloting to each attached terminal its own portion of the available bandwidth; or (3) by a time-division multiplexing arrangement, whereby each terminal has use of the full line bandwidth, but only intermittently between line use by other terminals.

With the development of a shared trunk star network one begins to see the growth of regional networking agencies. For this type of network the functions of such an agency are somewhat limited, since each group of terminals could in theory bypass the regional organization, establishing its own shared line link to the central computing facility. Nevertheless, the regional network agency has several roles that it can play at this stage. It can serve as a coordinator of network development within the region; it can represent in a uniform way the local units in negotiations with the nationally oriented center; it can handle all of the financial transactions between the local units and the nationally oriented service center; and it can provide a training facility for the local units. Note, however, that at this stage of development the regional center serves no direct hardware operating function, although it may operate a hardware maintenance facility for the local units within the region.

Since the regional center serves no hardware function, its location should not be critical to the success of the network. In order to minimize travel costs between the regional center and the local units it is reasonable to place the regional office centrally within the region. However, in an

established and stable network configuration there should be only infrequent need for such travel, so that this is not a critical factor in deciding the physical location of the regional office. Sometimes political or other behavioral reasons strongly influence the decision on the location of a regional network center.

Model 2: Modified star with concentrated lines

Our second network model involves the use of a minicomputer as a switching center at the regional network office, through which all local units are connected to a national service center. IUC/OCLC may very well be confronted with such a design decision, using Dallas as the switching center site as shown in Figure 3. A prime motivation for this is economic, since the switching center permits a certain amount of load leveling across the region, and hence can provide service to the local units with fewer trunk lines. By allowing users access to all trunk lines, this model avoids having users queued up for one line while another is free. For example, it is possible that the model illustrated in Figure 3 would only require three voice-grade lines to provide service equivalent to that available over the five lines of Figure 2.

NELINET (New England Library Network), with seventy-seven terminals, is making the transition from Model 1 design to Model 2 design, and expects to be operational in the new mode in December 1974. The central computer that they access is the OCLC computer of Columbus. The new network configuration includes a PDP 11-10 as the switching computer, with a PDP 11-45 to provide ancillary computing power and emergency backup equipment. This will enable NELINET to replace the current three voice-grade lines to OCLC with fewer lines operated at a higher transmission speed. It is anticipated that the net telecommunications costs, including cost of the minicomputers, will be 12% below their current costs.

This network design strengthens the need for a regional organization since each of the local units must receive its services through the regional switching center. Once the regional switching center is established, it is reasonable for the regional organization to offer added services that may require incremental changes in the regional hardware and software. It is quite clearly desirable for the regional hardware to handle identification of the local units for cost accounting, billing, and statistics on their use of the facility. One can further anticipate that some regions will acquire the hardware and software necessary for data editing functions. Initially such editing is simple and restricted to assuring that the data can be transmitted and received correctly; but more sophisticated editing can and will be added to the regional capabilities.

At this stage of development the possibility of a region providing additional services occurs. These generally envolve an enhancement of the hardware and software at the regional center - and the need for added personnel - and may be included either within this model stage or later, depending upon priorities. Referring specifically to the IUC/OCLC network as an example, one such function is the regional production of library catalog cards. This service becomes feasible when the volume of card production is such that the cost of regional production is competitive with the cost (including time delays) of having the cards produced at the central computer site.

A second type of service that the regional center may consider offering to its customers is access to regionally maintained data bases. These data bases can include materials that are heavily used within the region, and materials that are of specific interest to the region. The advantages of regional maintenance of such data bases are two-fold: reduction of data transmission charges, and the possibility of tailoring the data bases specificially to the needs of the local units within the region. These

advantages are obtained at the cost of maintaining additional storage capabilities and the software to access the data bases.

With very little additional cost beyond that needed for message switching the regional center can provide for its users intra-regional communication and conferencing. The messages from one local unit to another, and extended computer conferencing can be provided with the addition of some disk storage and some associated software. In fact, with proper planning the same hardware can both handle the conferencing needs and support the regional data bases.

The economic feasibility of this model is highly dependent on the location of the regional switching center. We have already mentioned the reduction of line charges between the region and the national service center, at the expense of more equipment and staff at the regional level. In addition, whereas a connection to a shared trunk, as in Model 1, can often be local, the use of a regional switching center would involve line charges between the local and regional levels for many of the customers. Thus location of the regional center becomes a more complex task, requiring some balance between the regional to national costs, and the local to regional costs. For example, a regional center at Dallas is relatively well situated with respect to a national center in Ohio, being in the eastern end of the southwestern region. It is fortunate that there is also a heavy concentration of local units within the Dallas area, so that local to regional costs are kept quite low despite the distances between Dallas and the western end of the region.

The other side of the economic coin is that the provision of various services at the regional level reduces the demand for such services from the nationally oriented service center. The effects of this are both positive and negative. The reduction in this demand allows the national service center to satisfy the needs of additional customers, or to develop and offer additional services that are beyond the capability or economically infeasible for the region to offer. However, this same reduction in demand may force the

national service center to increase its charges for other services in order to maintain its own health. This alteration in the pricing structure may then have an impact on the economics of the regional center. Such changes must be anticipated by the region.

Model 3: Use of multiple national service centers.

We have alluded to the wide variety of library functions that can be provided by a single centralized computer facility. While this is possible, the development and maintenance of these functions at an efficient and sophisticated level is a large task, requiring extensive computer facilities, an adequately trained staff, and tight managerial control. It is reasonable to suppose that any one national service center will be unable to maintain a uniform quality over a broad range of services, and that such a center may opt to provide a more limited range of services, that can be maintained at a consistently high level of quality. Even in the event that a national center exercises such an option, it is unlikely that any one center will long enjoy a monopoly on the specialized services that it offers. Thus multiple nationally oriented service centers become a distinct possibility.

This development of multiple national service centers affords an additional opportunity for the regional centers, and a new role. The regional center can now function as the retailer or broker for the wholesale services provided by the various national centers. Thus the regional center may offer to the local units cataloging from any of three different national centers, serials control from any of four, and so forth. The local centers will have access to a wider range of high quality services than any single nationally oriented service center could maintain, at a price that is kept reasonable by competition. This can be done at very little additional cost at the regional level, since the equipment to handle the switching and record keeping is present from the Model 2 stage of development.

For illustrative purposes, Figure 4 shows a possible Southwest regional center with trunk lines accessing OCLC, BALLOTS, and the Washington Library Network (WLN). Location of a regional center to minimize data transmission costs for this model becomes a more complex task than it is for Model 2 because of the involvement of several national service centers. Furthermore, it is evident that one cannot relocate the regional center every time a new national service is accessed. Thus the use of this model requires extremely careful planning, anticipating all services that are likely to be used in future years. It is also noted that the cost of dedicated trunk lines to each national service is sufficiently high that it is a limiting factor on the number of such services that a given region can access. Finally, the availability of multiple services, accessible through various regional centers, may weaken the dedication of a local library to any one regional center, thus blurring regional boundaries and introducing competition at the regional level. Nevertheless, this is a reasonable model for regional network development, provided that a region exercises care in its planning and implementation based on the model. However, many regions may find Model 4 more attractive.

Model 4: Packet switching networks

The regional center concept under Models 2 and 3 is based on the fact that each of the local libraries turns to the regional center as its agent in the quest for computerized library services. As general purpose telecommunication networks become established throughout the country one can envision a model in which the library is not served by a separate network, but rather exists as a member of one class of users on one of the general purpose networks. In Model 4 precisely this situation is foreseen, with the result that there is no longer a dedicated telecommunication line joining a regional center to a national service center. Under this model, the regional center

assumes the responsibility for evaluating and choosing among competing telecommunication services, as well as among competing national library services, and each national library service assumes the responsibility of assuring that its services are available via one or more of the telecommunication networks. A number of such commercial networks are presently available, but none is extensively used for library computing. Often the networks are geographically limited, and even when they are not, the cost of using them is apparently not sufficiently attractive to allow them to become dominant over specific networks dedicated to library functions.

This situation may well change as newer telecommunication technologies and concepts become functional. Primary among these new concepts is that of packet switching, involving the transmission of data in standard sized packets, rather than by individual messages that are of variable length. Proponents of packet switching assert that it has a considerable cost advantage over more conventional data transmission modes for high volume, long distance traffic. Opponents deny this, asserting that packet switching will provide simply another transmission alternative, without dominating the market.

Regardless of the resolution of market dominance, the emergence of packet-switched networks provides an attractive alternative for library networking. The imminent reality of Telenet, which plans to have operational packet switching centers in seven cities by March 1975, and in another eighteen by the end of the year, suggests that this alternative should be considered in any current network planning. The seven initial cities are Dallas, Boston, New York, Washington, D.C., Chicago, San Francisco, and Los Angeles. It is reasonable to assume that the next eighteen will include all major metropolitan areas in the continental U.S. Calculations indicate that for some non-library services the user can anticipate up to 20% savings in telecommunications costs over those of Model 1 by use of a packet-switched

network. Whether this figure holds for libraries can be tested as soon as a suitable portion of Telenet is operational, perhaps as early as a year from now.

When it becomes economically attractive for a library to be a customer on a general purpose telecommunications network rather than on a dedicated network, the environment of the regional center changes quite sharply. The general purpose network will develop its own common-carrier type switching centers, which could obsolete the regional switching centers suggested in Model 2. Within the six-state region covered by SLICE, for example, one might expect these common-carriers switching centers to be located in New Orleans, Houston, Dallas, Albuquerque, and Phoenix. The librarian in Corpus Christi, for example, may be faced with the choice of attaching to a general purpose network at Houston, or to a special purpose one at Dallas. This choice will of course be based on the cost and the services available.

In such an environment it is entirely possible for a regional library organization to atrophy. To prevent this end, the regional organization must actively take steps to induce the libraries within the region to continue to use its services. An attractive pricing structure and the offering of distinctive services can do much in this line. In addition, by proper planning the regional organization may be able to use the commercial network to its direct advantage. This implies that the regional library center should be located near one of the general purpose switching centers; that its hardware, software, and contractual obligations should be such that it can quickly join the general purpose network whenever this becomes advantageous; and that its policies, services, and pricing structure are such that its customers will be induced to channel their telecommunications traffic via the general purpose network through the regional center for processing. Thus the librarian in Corpus Christi may link to the network at Houston, but direct his traffic into

the Dallas regional library center for processing. This can certainly be the case if the regional center provides strong direct services to its customer libraries, and provides an attractive brokerage service for those library functions that it does not handle directly.

Model 5: Satellite-based networks

The development of a satellite-based network rests on the growth of a set of ground communication stations for transmission to and from the satellites. The technology of this area suggests that these communication stations will be sufficiently inexpensive that they can be established in all major and minor metropolitan areas. We thus anticipate a minimum of twelve to fifteen of these stations within the six-state region, with virtually every library of more than 50,000 volumes located within 100 miles of one of these stations.

One such satellite-based network exists in the Rocky Mountain states. In May 1974 the ATS-F (Applications Technology Satellite-F) was launched by NASA. The Federation of Rocky Mountain States currently uses this satellite for educational broadcasting to isolated communities. The SALINET (Satellite Library Network) project is presently providing limited in-service training to librarians via the satellite, and expects to use the satellite to handle compressed bibliographic data requested by participating libraries, and processed at the University of Kansas.

The use of satellites for data transmission implies that the transmission cost is virtually independent of the ground distance between the user and the processing center. Why then should the local library route its processing through the regional center rather than going directly to one of the national service centers? It seems likely that for many of the standard functions the regional center will not be able to compete effectively with an established national service center. The wider range of potential customers at the

national center permits both economies of scale, and the employment of a larger staff who can develop more sophisticated algorithms for the service. Thus more than in the other models, the regional center must rely on the provision of distinctive services in order to retain the loyalty of its local libraries. The key role of the regional center may well shift away from the provision of data processing services towards the provision of a communications facility among its local libraries, including both computer conferencing, and direct human communication in the form of meetings and workshops for the librarians within the region.

The development of the above five models rests on the assumption of a free market being operative in the field of library information processing. Given this economy, it seems reasonable to suppose that the library network system will develop along the lines that we have indicated. This development will not be uniform, however, and at any time within the coming five years one may expect to find libraries at all stages of network development. Indeed, it seems reasonable to suppose that one will never arrive at a stable state, with all libraries communicating according to one and only one of the above models. In fact, proponents of packet switching readily admit that its utility is based on an assumption of high traffic density, and suggest that library users who are involved in packet switching may still wish to retain their own regional message switching facilities for lower volume data transmission. The evolution of the mixture of telecommunications networks under the assumption of a free market economy is of small concern to us. Of more concern is the basic assumption of a free market economy, for any deviation from this assumption will affect the validity of these models.

Model 6: Federally organized network

The federal government has also been active in the design and implementation of selected library network services. The National Medical Library

Network, a strongly hierarchical design, is among the most successful of these efforts.

The National Medical Library Network, operated by the National Library of Medicine, is a hierarchical network providing bibliographic retrieval service to the member libraries. The country is divided into eleven regions, with one regional medical library (RML) designated for each region. In theory, requests from the local hospital or university libraries are referred to the RML, and subsequently to the National Library of Medicine if they cannot be filled at the RML. There is never any flow of requests back down other branches of the network. This structure is based on the supposition that the National Library contains a copy of every document that is likely to be relevant to any request on the system. In practice, this strictly hierarchical protocol is subverted by direct contact between librarians at lower levels in the network. It is possible that evolution of this network design will recognize and permit such deviations from strictly hierarchical protocol.

The recent report by Westat, Inc. to the National Commission on Libraries and Information Science [2] suggests the possibility of an imposed federal network design, supported by substantial federal funds. Specifically, the report recommends that "a National Library Network be established as an independent agency of the Federal Government,..." and that this network consist of three coordinated systems:

> "a Resource System designed to provide guaranteed access to all needed materials...
> a Bibliographic System designed to provide a unique authoritative bibliographic description for each item...
> a Communications System designed to provide on-line communication of bibliographic data and requests for data and services...."

The network suggested in the Westat study is basically hierarchical, with five distinct levels in the structure: national, regional, zonal, state, and local. Two sample network organizations are described. Each has four regions consisting of two or three multi-state zones per region. Each zone in turn contains from two to eight states. In contrast to the Regional Medical Network, flow throughout this hierarchical structure is two-directional, with the possibility that a request at any level in the hiearchy may be handed down to a library or center at a lower level within that portion of the hierarchy, as well as passed on up towards the national level. In addition, at the regional level it is possible to transmit a request directly to another region without going through the national center, although the analogous request structure is not available at the zonal or state level.

The development of such a federally-backed network, should it occur, would have a strong impact on other network ventures. The Westat report is cognizant of this impact, stating that, "The network should be built on existing systems, encouraging their adaptation, as necessary, to new patterns and more widespread goals." The sample network organizations in the report are also drawn up taking cognizance of the existing library consortia and networking efforts. Thus, in one of the plans the region served by SLICE appears as a zone.

The acceptance of the Westat report and the development of a national library network based on its recommendations is certainly a possibility that must be considered in any planning that is done at a regional level. This means that regional centers and service centers offering nationwide services should both provide input to developing federal plans, and remain flexible enough in their structure, equipment, and policies that they can adapt readily to the federal library network, should one really develop.

CONCLUSIONS AND RECOMMENDATIONS

In the course of this study we have examined existing and planned library networks and have observed them to fall into one of the six model types that we have defined. The availability and cost of both telecommunications and computing services are large factors in any decision to implement a specific type of network, and in the operating budget of such a network. We observe also that the momentum towards networking and other cooperative endeavors is strong, with nearly 150 different efforts involving virtually all major and many minor libraries in the country. In such an atmosphere it is all too easy to make hasty and ill-considered decisions. Therefore we make the following recommendations.

1. Because of the existence of several network models, and the possible rapid evolution through these models, there is a need for network planning guidelines that enable each library network to develop in an orderly manner, with sufficient flexibility to incorporate changes in design and technology, and guidelines that enable each individual library to make rational decisions on the use of network facilities. A study aimed at developing these guidelines should be undertaken as soon as possible.

2. Because of the importance of costs and pricing in the viability of a network, and because telecommunications costs form a major component of network operating expenses, there is a need for accurate cost studies of networks, examining in particular the relationships between telecommunications costs, the levels of service provided, and the frequency of use of each service. NELINET is planning to gather the statistics for such a study; we recommend that other networks follow suite.

3. With specific recognition that commercial packet-switched networks are imminent, and that satellite-based networks are not far behind, we recommend two evolutionary paths for developing networks. For those networks

currently in the Model 1 stage, we recommend that with proper justification they progress as rapidly as possible to Model 2 or to limited forms of Model 3. We believe that this will enable them to provide a significant improvement in services to their member libraries. For those networks that are still in the planning stages before Model 1, we recommend that they consider passing directly to Model 4. They do not have a heavy investment in hardware and software at present, and it appears certain that at least one packet-switched network will be available for use before they could order, install, and bring into operation their own equipment. Likewise, networks that are in the progression from Model 1 to Model 3 should consider the possibility of interrupting this progression to move directly to Model 4. Such a move requires careful study and should not be undertaken lightly.

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Sally Hogan	North Texas State University Library
Donald Kerr	East Texas State University Library
Frederick G. Kilgour	OCLC
Dorothy Lilley	East Texas State University, Dept. of Library and Information Science
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Ronald Miller	NELINET
Mary Nordick	University of Denver, Graduate School of Librarianship
Larry Roberts	Telenet
Wilson Snodgrass	Southern Methodist University

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His publication relating to information networks include the following:

Martin Greenberger,_____, James McKenney, and William Massey, "Networks for Research and Education," M.I.T. Press, Cambridge, Mass., 1974.

_____, Douglas Parnell, Thomas Paterson, "Role of Computer Utility Networks in Health Care," presented at AAAS National Meeting, Washington, D.C., Dec. 29, 1972.

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_____, and Robert Korfhage, "Characteristics of Regional Network Organizations," Proceedings of 2nd Computer Conference, University of Texas, Austin, November 1973.

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Dr. Korfhage is author of many publications in computing and mathematics, including five successful textbooks. He has been active in Sigma Xi, the Mathematical Association of America, the Medical Library Association, and the Association for Computing Machinery. In the latter society he has held several national offices, and is presently Chairman of the Special Interest Group on Information Retrieval, and candidate for Regional Representative for the South Central Region.

His publications relating to information networks include the following:

"Graphical data systems for library retrieval" SMU Technical Report CP-710006, April 1971

"Information networks: definitions and message transfer models" (with R.E. Nance and U.N. Bhat) J. Amer. Soc. for Info. Sci. 23, 4, July - August 1972, 237-247

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"Information networks: a probabilistic model for hierarchical message transfer" (with Nance and Bhat) SMU Technical Report CP-710023, November 1971

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"Characteristics of regional network organizations" (with J. Aronofsky) Proceedings of Second Texas Conference on Computing Systems, November 1973, 43-1 - 43-5

Fig. 1--OCLC Users, 1 September 1974**

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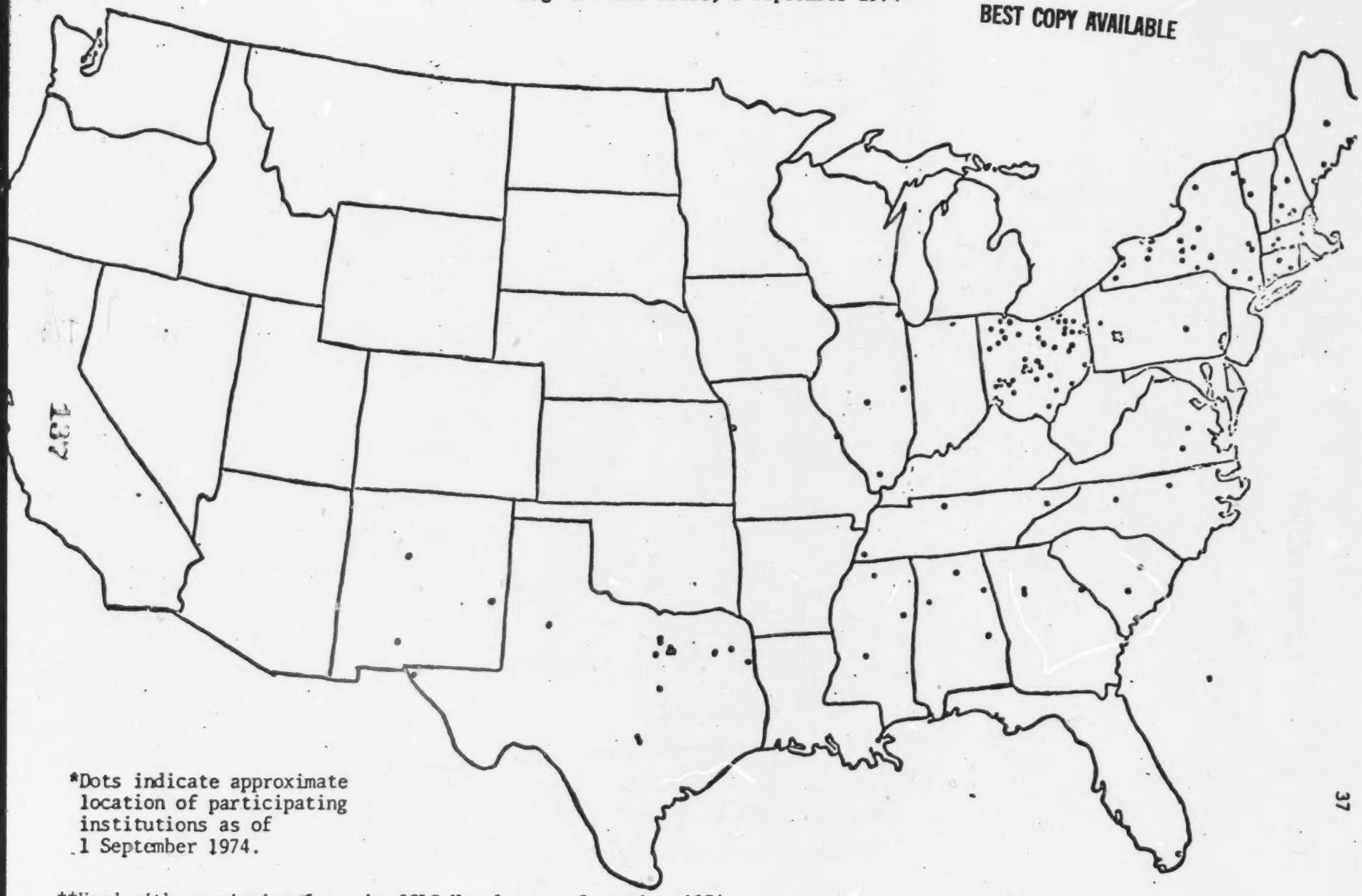
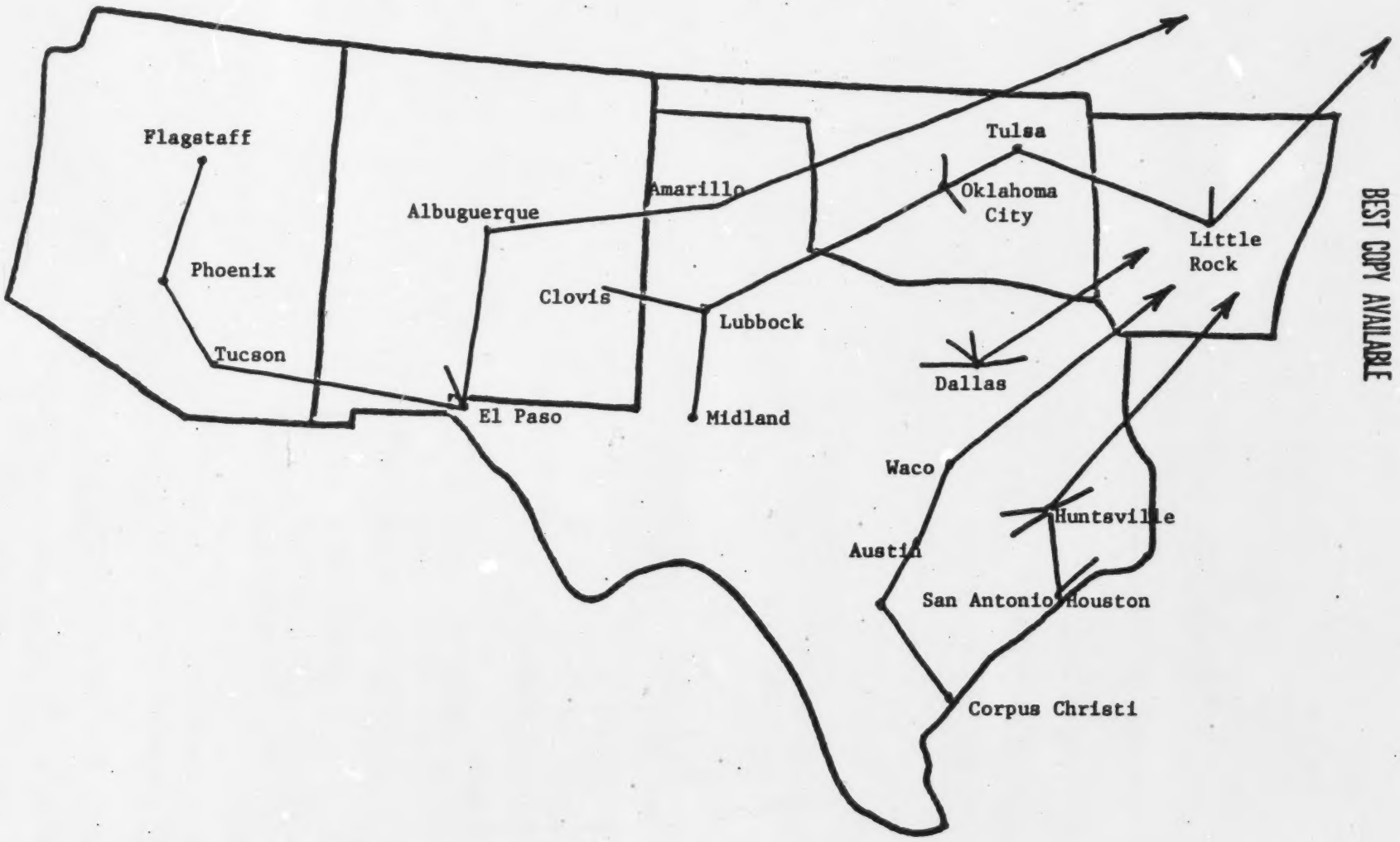


*Dots indicate approximate location of participating institutions as of 1 September 1974.

**Used with permission from the OCLC Newsletter, September 1974.

Fig. 2--A possible IUC/OCLC expansion*



*Used with permission from IUC/OCLC

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Fig. 3.--A possible concentration of IUC/OCLC telecommunications lines.

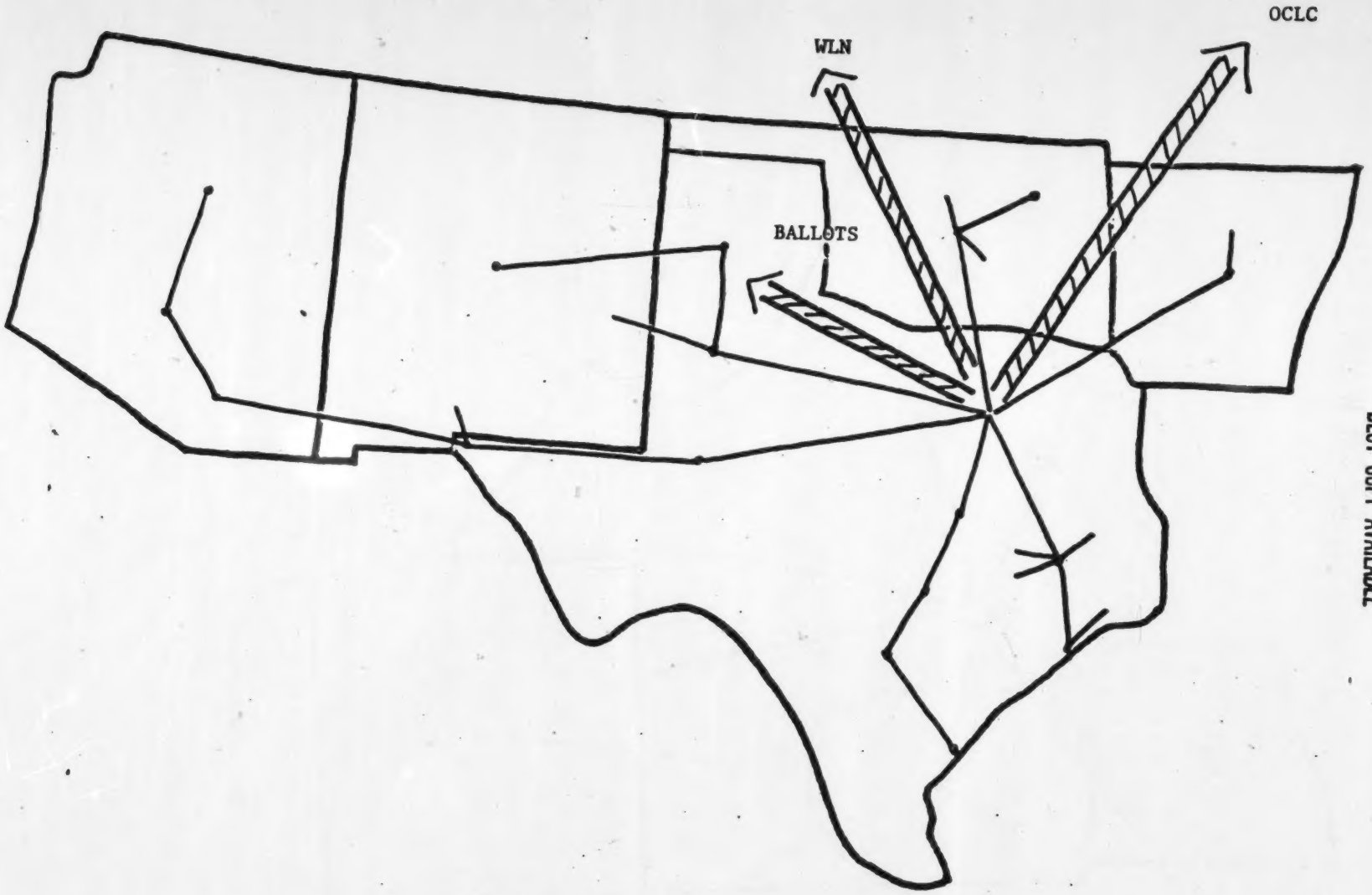

Fig. 4.--A possible Southwest regional center

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APPENDIX F

"Models for Library Network Planning"
by William H. Scholz

MODELS FOR LIBRARY NETWORK PLANNING

William H. Scholz

New Mexico State Library
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A SLICE-CLR Working Paper
December 1974

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Models for Library Network Planning

William H. Scholz

INTRODUCTION

Library networks, as anyone involved in their design, planning, operation, or evaluation knows, are massively complex undertakings whenever they incorporate more than two or three institutions. Even such small cooperative endeavors can become complicated if very many functions are involved or if a substantial geographic area is covered. In the SLICE regional effort all these factors are included. As a result, it seems obvious that the proposed undertaking be coupled with careful analysis of the situation, the functions and the institutions involved.

This paper is designed to present some conceptual bases for that analysis by looking at the types of problems inherent in the effort. It is apparent that many of the problems have been approached before in other disciplines. Therefore, the specific aim of this work is to identify what the author sees as the key areas of difficulty and to look for linkages to other disciplines where solutions or approaches may be found.

MODELING

Before tackling the specific problem areas and potential solutions, it is appropriate to explore briefly the basic philosophy which underlies this author's approach to network planning and design.

In an area as complicated as library networks, it is imperative that whatever technique is used for planning, it should have the primary characteristic of being traceable. That is, logic or decision processes must have a flow in which each step is directly related to the previous steps. For this reason, the preferable approach is that of modeling. For our purposes, modeling can be considered the specification of a set of relationships (functional) between parts of a whole. In order for the model, i.e. the relationships, to be useful, they must be expressible numerically and there must be the possibility of manipulation of quantities and relationships. This manipulation should be designed to answer questions of the "what is...?" type.

It should not be inferred that the models appropriate to the problem need be necessarily complex in themselves. Indeed, an often used touchstone for quantitative models is that they are as simple as possible and still accomplish the needed work. As a corollary of this simplicity, it should be remembered that any model is an approximation of reality. No model can possibly account for all the possible things which might have an effect upon the decision, plan, or design under examination. The real art of model building or selection is the ability to isolate the important factors to be included in the model from those which needlessly complicate the formulation without contributing to the information derived.

One final point about models - there is no such thing as a 'decision-making' model <u>per se</u>. Because they approximate reality, the best any model can

do is to isolate, define, refine, and clarify a situation. The decision making function remains, and should remain, a human function which is non-quantifiable. Value-judgment assessments of the impact of various courses of action play a vital role. The major contribution that models do make, however, is to create a more or less simplified, more or less quantifiable description of reality which can be manipulated to explore the impact of various alternative courses of action.

TYPES OF MODELS

A simplified division of types of models can be created which will suit our needs at this conceptual level. From this point on the discussion will be limited to mathematical models. That is, those which express relationships in terms of quantifiable factors and in which either the factors or the relationships themselves, or both, are subject to manipulation.

The first of the two types is a "simulation model". In this case the relationships are derived between various factors which enter into a situation. Those relationships are described in mathematical terms and the ranges within which the factors may vary are specified. The way the factors vary may be either random (in which case the model is called "stochastic") or by some predetermined pattern. (For example, a factor may be increased by so many units each time the model is cycled.)

The purpose of such a model is simply to explore "What happens if...". A library application of this type might be the following: Suppose there is an interlibrary loan department with a fixed amount of staff. What happens to the average time to process a request as a function of the number of requests which arrive each day? How much of a backlog might develop if that number of requests goes up by 50% on the average? When should the manager consider getting temporary help in order to keep the backlog down to a reasonable level? These and similar questions could be answered by such a model.

The second type is known as an "optimizing" model. There are many subtypes, but these need not be of concern here. The major difference between the optimizing model and the simulation model is in the output. That is, in the question answered. Optimizing models are intended to provide the best (optimum) answer under a set of specified conditions. To carry out the previous example, this kind of model might be designed to answer a question like: If the manager expects a certain average number of requests a day; if the variation in the number of requests from day to day follows a certain statistical distribution; and if he wants the average time to process a request to be less than a certain amount; what is the minimum number of people who should work in the interlibrary loan department?

Optimization models are, in general, more sophisticated than simulation models in that they usually involve more complicated mathematics. In fact, there are some areas in which the mathematics do not exist for creating a direct optimizing model. However, for many kinds of problems (including some library problems), standard formulations are known.

NETWORK PLANNING PROBLEMS

There are many approaches to the issue of how one goes about designing and/or planning library networks. However, perhaps the major root of differences

between these approaches lies in the definition of what a network is. For our purposes two definitions will suffice:

1. LIBRARY SYSTEM -- a group of libraries jointly committed to cooperative programs to enhance the availability of library resources. (materials, staff, facilities, etc.)

2. LIBRARY NETWORKS -- a structured organization created and maintained to facilitate such cooperative programs.

Using these definitions, many specific networks are possible, but they all have the characteristics of being structured, of requiring maintainence, and of relating to cooperation. In the discussion to follow, specific networking contexts will be used. It should be remembered, however, that the models discussed may well be applicable in more than one context.

NETWORK PLANNING PROBLEM 1 -- Resource Sharing

Still of major interest in many cooperative endeavors is the question of how best to share materials resources among a group of libraries. A great deal of effort has gone into questions such as the mechanics for determining locations of needed items, interlibrary loan codes and protocols, and delivery systems. While all these concerns are valid ones and need to be explored, it seems that a major first step has been left out. In a large regional organization, it may not be optimal to have all of the resources of all of the libraries available to all of the participants. This does not concern the question of physical availability, but rather the matter of information about who owns what. The provision of that information costs money and some means is needed of judging the value of providing it versus the cost of providing it. There are many possibilities for judging the value of such information. However, it does seem to be a problem which should concern those responsible for designing or establishing networks, one of the functions of which, is the sharing of materials resources. It also seems that it is probably an area in which the tool of modeling can be of some use.

As a first step, assuming that the geographical area and the institutions to be considered have been agreed on, one must decide on a criterion to be measured. It seems logical to use as a criterion, the availability of materials to the institutions included in the network. Having decided on that, it is necessary to define availability. Does one mean the ownership of materials, or the actual availability to a prospective borrower when a demand occurs. It is the author's position, that actual 'on-the-shelf' availability is the much more realistic criterion since the expressed intent of such a network is to increase the likelihood that a library patron will be able to satisfy his demand within a reasonable time.

The second step is to make a decision as to how the 'availability' of materials is to be measured and expressed. A clear-cut means for expression seems to be the concept of the likelihood that at a time when a demand for an item occurs, that item will be on the shelf in one or more of the network libraries, and therefore available for loan. Considering the simple case of just a single library, that likelihood is made up of two components. First, the chance that the item in question is owned by the library, and second, if it is owned, the likelihood that it is on the shelf at the time in question.

The measurement of these components presents some dificulty, but this is not insuperable. For example on the matter of ownership, the likelihood can be expressed as a probability. This probability can be derived by dividing the number of items owned in a certain subject, date range, or similar category by the number of items in that category that it would be possible to own. To put it in concrete terms, suppose that the category was defined as books published in 1973 with American imprints and in the English language. The universe figure then is about 30,000. If a library owned 4,500 of these, the probability of ownership for the category would be 4,500/30,000 or .15.

The matter of on-shelf availability can be accounted for by determining, for that library, the average number of circulations per year for the category, multiplying that number times the average number of days out per circulation, and dividing the resulting number of days by 365. A numerical example:

$$\frac{(2.54\text{circs./year}) \times (28.6\ \text{days/circ.})}{365} = .1990$$

The result subtracted from 1 gives the probability that on any day, books in the category which are owned by the library will be on the shelf. In order to find the probability that an item chosen at random from the category will be both owned by the library and on the shelf, one simply multiplies the two component probabilities. Numerically:

(.15)	X	(.8010)	=	.1201
ownership		shelf		availability index

Before continuing on with the network problem, it is appropriate to point out that a 'model' has been created. This model allows the calculation of an availability index for any category of materials. It could be used in conjunction with costs data on book prices, processing costs, and acquisitions costs to determine the incremental benefits to be derived in terms of availability from the investment of funds in a book budget. It could also be used, with minor modification, to compare the marginal increase in availability in various categories as a result of various allocations schemes for book budget dollars. Finally, the same concept is applicable for judging the usefulness of periodical resources and the marginal benefits derived from increasing them. This is an example of a model developed for a specific context which has applications in others as well.

In the network context, there are two other refinements which the model needs before it can be truly useful. The first and the most difficult, is the consideration of and accounting for duplication between collections. There are two choices. In the first, the duplication is essentially ignored on the grounds that network access to multiple copies of items is one of the strengths of such a cooperative activity. Thus each collection is treated as though it did not duplicate at all any other resource included in the network. That is, if 10 libraries each had 4,500 items in a given category, they are considered as though they were, in the aggregate, 45,000 different items. There is, on the basis of heavy demand for multiple copies of some items, some justification for this approach. In addition, since duplication does not have to be explicitly considered, the data collection effort is reduced. The latter, in a large network, can be a major factor.

The second choice is intentionally to take into account the actual duplication between collections. The only reasonable way to do this (in terms of data collection effort) is to set up one library as a standard and measure all others against it. It is possible, of course, to start with one library, measure the duplication of a second with it, measure the duplication of a third with the combination of the first two, and on and on. However, except in unusual circumstances, it is doubtful whether the increased accuracy would justify the much higher data collection cost. If the 'single-standard' approach is taken, then the contribution of the second and subsequent libraries to the title pool of the network is reduced by the proportion of items held also by the first institution. This reduction would take the form of some decimal fraction to be multiplied by the probability of ownership.

The second refinement referred to above is clearly the most important of the two. According to probability theory, if one had six libraries, all with probability statements about the 'availability' of items in a certain category, the product of the six probabilities (availability indices) would equal the probability of having at least six copies of an item on the shelf simultaneously. This is obviously too rigorous a criterion for judging the performance of the network. Instead, it seems more reasonable to judge by the probability of having at least <u>one</u> copy available at any point in time. Without going into detail* there are ways of computing the likelihood of at least one copy being available. These methods are mathematically tractable for small computers for up to about 20 or 25 libraries in a network. It should be noted that any criterion can be chosen, i.e. one, two, three, or more copies available. The choice must be made by the designer on the basis of the performance desired of the network versus cost.

Thus far, the concepts have been developed for a model which relates network resources (in terms of collections) to performance. However, nothing has been said about cost. This is of course an important factor for any planner, since in the long run it is cost which usually determines feasibility. It is the author's opinion that first decisions should be made on the basis of performance. Will a projected network generate benefits in terms of results to justify even the consideration of the real sharing of resources? If the answer to that question appears to be affirmative, then costs can be explicitly taken into consideration.

The question of assessing costs is a difficult one at best in an area where the benefits to the ultimate consumer of the service being provided are either tenuous or intangible or both. However, if some index of performance, or potential performance, can be derived, there is a fairly simple way of judging between the alternative courses of action. An example will be clearer than a theoretical discussion.

Suppose a resource-sharing network exists where the index of performance (availability index) for all collection combined is .684. Suppose further than the continuing cost of maintaining the index is $86,000 per year. Also suppose that a decision has been made that the index needs to be raised to at least .75. It

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* The method for computing the probability of at least n out of m events given the individual probabilities of each of the m, is well known and can be found in any good text on probability theory.

will be postulated that there are three alternatives for making that increase: 1). add collection A; index will go up to .786 and the annual cost will rise to $97,000. 2). add collection B; index will rise to .832 and cost will increse to $104,000 per year. 3). add collection C; index increases to .848 and cost will be $112,000. The problem since all three alternatives meet the requirement of increasing the index sufficiently, is to choose the one which achieves it most cost-effectively, cet. par.

One way to answer the question is to look at the ratio between the percentage increase in the index of performance and the percentage increase in the annual cost. The highest ratio indicates the greatest relative cost-effectiveness. Given the data above, the results are shown in the table below.

PERCENTAGE INCREASE

	BASE	ALT.A	ALT. B	ALT. C
Index	.684	14.91%	21.64%	23.98%
Cost	$86,000	12.79%	20.93%	30.23%
	RATIO	1.1658	1.0339	0.7933

Clearly in this case, the first alternative has the highest ratio and is, all other things being equal, the most cost effective. There are many problems with a simple method such as this. It does have the advantage of simplicity and of ease of understanding. If intelligently used it can be of great assistance in at least a preliminary selection from among a set of possible courses of action. The greatest difficulty is the accurate assessment of the costs of the various alternatives. The planner is strongly advised to have expert advice from a professional when concerned with matters of cost accounting. One trick of the trade, when dealing with areas such as this is to perform a simple sensitivity analysis on the results. Such analysis is designed to test how much the costs would have to vary before the decision would change. As an example, in the table above, if we assume that the performance index figures are correct, then we would not prefer alternative B over alternative A unless the cost for A rose to $98,400 or the cost for B decreased to $102,000. These figures give an idea of the range within which the decision indicated is good and help assess the likelihood that the change in costs would affect the cost-effectiveness.

The concepts presented in this discussion of a resource sharing planning model have intentionally been kept general. The decision area is an important one and will become increasingly so as more librarians and planners offer more alternatives for cooperation. It should be noted that while the context is one of presentation to designers and planners, the ideas are equally applicable to the individual librarian who has an opportunity to participate in two or more network operations. The concepts can be applied 'backwards' by a potential participant to assist in an assessment of what any institution is likely to derive in benefits as a result of network membership.

As a final note, it should be observed that the model discussed above, is neither an optimizing model nor a simulation model as presented. It could be formulated as either. It is a good example of the first and, the most important, demonstrates steps in creating the basis for either kind.

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NETWORK PLANNING PROBLEM 2 -- Communications

In the remaining sections of this paper, less detailed attention will be given to the problems. Having gone through the initial steps of model development in resource sharing above, it seems most appropriate to discuss the parameters of models which deal with other areas and point out where work in other disciplines is relevant. Space does not permit the development of models for all the other areas.

Communications is a topic of increasing importance to libraries. With the advent of such tools as lasers, satellites, and high speed land-lines for data transmission, the choice between alternatives becomes increasingly complex. At the same time, because of the widely varying capabilities of these alternatives, the selection becomes ever more crucial.

The best approach to the problem is the careful specification of needs. A critical assessment of current and future requirements for speed, accuracy, transferrability, and interface equipment is the basis for an accurate choice. In addition, geographical area to be covered, number of institutions to be served, volume of traffic, and terrain are important. The situation with regard to common-carrier vendors is in a constant state of flux and requires monitoring if the best choice is to be made.

Some excellent work in modeling requirements and possible sources has been done by the vendors in the communications field. The planner should make every effort to avail himself of this work, but care must be exercised when dealing with organizations which have or may have a vested interest in the outcome of an analysis. Perhaps the most common modeling technique in this field is simulation. There are service firms which specialize in conducting analyses of customer needs and these should be given careful consideration.

NETWORK PLANNING PROBLEM 3 -- Technical Services

The library field is presently surfeited with a large number of organizations providing and purporting to provide various kinds and levels of technical services support to individual institutions and groups of institutions. Network planners, as well as individual library managers are subject to a great deal of information from these vendors. The only guarantee of a reasonably accurate decision in this area is also a careful analysis and understanding of the library's needs in this area. There are three major concerns that the analyst in technical services should have. First is the matter of compatibility. There are no simple answers to how much or how little compatibility should enter into a decision about whether or not to buy service from any particular organization. The importance of this factor must depend ultimately on what the consumer intends to do with the service and data purchased. If communication of the information is a major consideration, a format compatible with others' is critical.

The second factor is the level, in the sense of quality, of bibliographic data and products that the purchaser requires. Here again, there are no magic answers. The decision must be based on a thorough knowledge of clientele and their needs. A subsidiary consideration is the level of bibliographic data which might be provided by the library or network to other consumers. While not of direct importance, it can have implications for the cost of the technical services operation as a whole by imposing standards which the organization might not adhere to itself.

The third and final factor is cost. Libraries have, as a whole, done a poor job of cost analysis of their operations. This was of relatively little importance when the only budget concern was with the local fiscal agent. Now, there is the necessity for accurate comparisons of cost with various vendors of technical services support functions. It is of major importance that any network, or any library, know exactly where it stands in terms of costs for present and projected operations. The best solution, as stated above, seems to be in the area of seeking expert help in both cost determination and analysis.

Unfortunately, in the areas of bibliographic control and technical services there has been little work done in standardized modeling either within the discipline or outside. The planner can only look forward to substantial effort in developing such tools.

CONCLUSION

Library and information networks provide at once both a tremendously challenging, and tremendously frustrating field in which to plan and design. The inherent complexity of the task is the source of both. Libraries must cooperate if they are to fulfill the mission which they have taken upon themselves. Cooperation, if it is to be successful, demands careful planning and design of the tools to carry it out. Modeling, in the terms defined at the beginning of this paper, is one of the keys to that planning. It is the hope, and the intent, of the SLICE networking project that it will be one of the sources of worthwhile work in this important area.

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APPENDIX G

CELS Project Report
as of
January 19, 1975

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APPENDIX G

CELS Project Report as of January 19, 1975

The major focus of the SLICE Office this year has been the CELS Project; therefore, most of the report will concentrate on the development of that project. However, we are aware that the SLICE Council involvement in the issues of Librarianship goes beyond continuing education. The SLICE Office remains eagar to consider any project in which the Council may be interested. Indeed, the SLICE Office welcomes any future projects that the SLICE Council may recommend. As the research and development arm of SWLA, the Council will certainly be defining other areas for exploration in the months to come.

Now to the CELS Project. To steal a quote from the N.E.H. Project - who stole it from Walter Cronkite - "It is necessary to understand who we are before we look at who we should be".

So the initial efforts during this first quarter have been directed towards becoming familiar with actual situations in the Southwest in the continuing education field. The Coordinator is learning what is now being done in each state, what needs to be done and how the CELS project can help to meet these needs. At the same time she is attempting to structure an overall view of the Southwest Region and how all these continuing activities can be coordinated to benefit all SWLA members.

Since there are at present no funds for program development, the Project is looking for means to share and exchange existing programs as well as searching for available funds to develop new ones.

The immediate goal is to establish a Continuing Education Network for the region to provide better communication about activities, programs and resources by identifying people involved with Continuing Education in each state with whom the Coordinator can work on future projects. The LSU Institute will produce a core of trainers that will help to implement this network.

Now to projects in process:

1. The Allie Beth Martin/Maryann Duggan Report: Ms. O'Donnell and Mrs. Martin have edited it for publication. Mrs. O'Donnell is writing a foreword (attached) to update the information and detail what has happened as a result of the survey and recommendations. The report is in final typing prior to being sent to the University of Texas at Austin for publication.

2. The CELS Survey: By working with the state libraries and the state associations wider distribution of the questionnaire has been possible. At this time over 600 responses have been received. The largest number has been received from Texas partly because of its size and partly because the questionnaire was widely distributed there first. All the other states are distributing it at this time. The information being received is largely what it was in October, 1974.

One day or two day workshops are preferred with library management, A-V techniques, personnel administration, budgeting, reference, bibliography and subject surveys continuing to lead as topic choices. These results are similar to those received by other surveys, both national and regional.

3. Program development: Although no funds are available through SLICE for program development, the Library Automation Workshop is available as a result of the previous SLICE project under the direction of Maryann Duggan. John Corbin designed the workshop which can be tailored to the individual library's needs. The Texas State Library is funding the presentation of this workshop for each of the ten Major Resource Centers in the state upon request. Inquiries have also been received from Arkansas and New Mexico concerning this workshop. Dr. Corbin has presented his syllabus for this workshop to the SLICE Office. It is 150 pages long and exceptionally well done. SLICE will explore the possibility of publishing the complete document.

4. The Nonprint Institute, the SWLA Preconference: The SLICE Office has gathered almost all the materials issuing from the Preconference both print and nonprint. Ms. O'Donnell is exploring ways of packaging the material for distribution.

5. SLICE/State Library Program Development: Since the state agencies fund the CELS Project, the CELS Coordinator has been discussing with the state agencies programs they would like to have developed within their own states. The CELS Coordinator would work with the development of these programs keeping in mind the possibility of exchanging programs with other states. At this point Texas has been very receptive to this idea. The state has the funds for a series on management and personnel administration. The Arizona State Library has commissioned a proposal for a workshop on federal and state government documents. Louisiana has indicated an interest in developing a package on reference and reference interviewing techniques which has implications for use all across the region.

6. Cassette Current Awareness Project: Ms. O'Donnell distributed a proposal for consideration by the Council. The proposal is for an experimental production on a bimonthly basis of audiocassettes of material of current interest to library staffs. These would be reviews of current articles in library literature as well as in other fields of interest to library staffs in the region. They are to be lively, interesting and brief with citations to the complete publication. Ms. O'Donnell pointed out that the project will need seed money for implementation, becoming self-supporting as soon as possible. The legal aspects must also be clarified. The abstracting of articles will be done by library school students as class assignments. The material will go to the SLICE Office for editing. The reading and production will be done professionally. Ms. O'Donnell has received approval and support from four library schools for this undertaking. A similar project has been successfully implemented by the American Institute of Architects. Ms. O'Donnell will consult

with Dr. Stuart Rose, instigator of the program for the architects, concerning the legal and financial aspects of the proposed project. Distribution of the cassettes will be on a sliding cost scale determined by membership in SWLA and residence within or without the region.

The SLICE Council's opinion of continuing exploring the legal and financial aspects of the cassette program proposal have been solicited.

Questions and comments included:

1. Could it be duplicated for wide staff use? Yes, it is meant to achieve the widest possible distribution.

2. Will it be a profit-making enterprise? No, it must become self-supporting. If it ever made money, the funds would go into program development.

3. How soon after publication will material be available on cassette? That would depend on students' abstracting service. Speed of availability is crucial. Bimonthly production is seen as initial effort. Monthly may be a better format.

4. Will articles be from specific list of publications or a sample of many? Initially would be from a specific list of publications. If all library schools willing to become involved, the coverage could be much broader.

5. Who will be charged with critical selection of what to be included? The selection will be guided by the Deans of the library schools and the SLICE Office Director. James Dodson suggested that a select group of people in the region be asked to do the abstracting since professionals in the field would have more expertise than students in selection and in execution. Ms. O'Donnell will explore this possibility.

The concensus of opinion of the Council was for Ms. O'Donnell to pursue more information on the proposed project. She will report to the Council at A.L.A.-San Francisco.

The SLICE Office through the CELS Coordinator will be submitting a proposal to the U. S. Office of Education for a Title II B HEA grant. The proposal will be in conjunction with the NEH proposal to provide for training librarians in program planning.

She reported that interest had been exhibited by libraries around the region for CELS to coordinate an exchange of staff at the middle-management level.

The CELS Coordinator has been offering consulting service at no cost to libraries in the region with good response.

Attention is called to the recent CELS mailing which included:

1. A reporting and evaluation form for programs.

2. "CELS Update" - a newsletter covering recent activity in the SLICE/ CELS Office.

3. A memo to members of the Continuing Education Interest Group from the Chairperson, Richard Waters.

One of the principal charges of the CELS Coordinator is to locate expertise in the region. It is hoped that this mailing will be of value in this search.

A reward system for continuing education is also of importance. The Coordinator has been pursuing ways of awarding Continuing Education Units. Richland College, part of the Dallas Community College System, has offered to tailor an adult education course for any group designated by the CELS Coordinator. Richland College can award the C.E.U. The Coordinator has suggested investigating community colleges in the region which will create such programs and can award Continuing Education Units.

In the meantime the Coordinator has devised a certification form for completion of any CELS-sponsored course.

Ms. O'Donnell hopes to visit all states in the region by March, 1975. The travel budget for the CELS Coordinator is approximately half of what is needed. The funds are currently set at $150.00 monthly when actual costs are closer to $300.00. A request will be made to the SWLA Executive Board for supplemental travel funds.

Ms. O'Donnell will speak before the Louisiana Library Association, the New Mexico Library Association and the Arizona State Library Association. She spoke to the Dallas County Library Association in December.

The SLICE Council agreed to offering the CELS certificate for completing CELS sponsored workshops. Attention is called to the "CELS Update." (which is included). By sending it to everyone known by the CELS Coordinator involved in continuing education it can go a long way in raising awareness of the project and securing increased support.

In March, 1975, SWLA is sponsoring a USOE Title II B HEA institute at Louisiana State University-Baton Rouge to train librarians from the region in techniques of continuing education. Under the direction of Dr. Donald Foos thirty participants (five from each of the six states in the region) will spend two weeks in intensive training.

The SWLA CELS Advisory Group will be restructured to include the deans of the graduate library schools in the region, the person(s) at each state library charged with continuing education programs, the representative of each state library association responsible for continuing education and individuals in other associations and other fields who are concerned with continuing education. The first meeting of the revised Advisory Group will be at the American Library Association Conference in July, 1975.

The SLICE Council and the SLICE Office Director/CELS Coordinator will maintain contact with the previous SLICE Project, the Bibliographic Network Project,

through the newly-created Bibliographic Network and Resource Sharing Advisory Group. Under the direction of the chairman, William Scholz. The Group consisting of representatives from each state will monitor networking and resource sharing in the region. They will be responsible for keeping the Council and the Office Director aware of activities, trends and needs in the areas of networking and sharing. They will make specific recommendations for action to the Council and Office Director when they see a role for SLICE to assume.

The SLICE Office Director/CELS Coordinator will formally report again to the SLICE Council at the American Library Association Conference in July, 1975.

Peggy O'Donnell
SLICE Office Director/CELS Coordinator

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FOREWORD

Continuing Education promises to be a high priority library topic in the 70's. The national picture is bright. The publication of the National Commission on Libraries and Information Science report on continuing education with its recommendations for a National Network, (CLENE), shows committment on the highest level. A committee has been formed of library educators and continuing education specialists from all over the U. S. to seek funding to start the project and to establish an office and staff. The CELS coordinator is a member of this group.

The CELS project of the Southwestern Library Association (SWLA) is being studied by the committee since it is a regional model similar to the proposed national model. The CELS office in Dallas is one of several being considered as a headquarters for CLENE.

ALA's Office of Library Personnel Resources (OLPR), now under the direction of Margaret Myers, has put a new emphasis on continuing education. A useful calendar of continuing education activities is published in OLPR's Newsletter. OLPR plans to work closely with CELS and other library groups active in continuing education. Many regional organizations are considering what action they should take to encourage and stimulate efforts in this field. This survey of the Southwest will be helpful to these and other groups.

The initial survey of the Southwest was done during 1973. The data was tabulated and circulated to members of SWLA so that an on-going program could be achieved. Although the publication of the report was initially delayed, action on it was not, providing a unique opportunity for the editors to include their comments on how the recommendations resulting from the survey were actually implemented.

This introduction will review the events of the past months that led to the establishment of a full time continuing education operation in the SLICE offices. The report established the need for regional cooperation

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and coordination. The steps taken to develop a closely-knit program are documented here.

As a result of the report's recommendation SWLA and other components of a continuing education network, such as the state library agencies, the state associations and others, have accepted the responsibilities outlined for each. Many have designated specific individuals to work directly with the CELS office. All are contributing support by supplying expertise and by encouraging involvement of their staffs and membership in continuing education efforts. An active network is being formed. Specialists are being developed who can aid in training and program development.

The time table outlined in the report on page 22 was met in most instances. The CELS Advisory Group was established in February, 1974. It has since been restructured to include continuing education practioners in the region as well as the Deans of the Library Schools. The funding for the project was obtained and a search for the coordinator began. Peggy O'Donnell, formerly of the Bay Area Reference Center, accepted the position of SLICE Office Director and CELS Coordinator in November, 1974. The program was in full swing by January 1, 1975.

The CELS staff and office costs are totally funded through July, 1976. The CELS project has received funds for these expenses from 3 of the 4 recommended sources of income listed in this report. The bulk of the money for the project is provided by the six state libraries from their LSCA funds. To augment this funding the SWLA membership voted to double the dues rates at its conference in Galveston in October, 1974. A major portion of the increase is earmarked for continuing education. Additionally, a successful preconference institute on cataloging non-print media added $2600 to the CELS coffers. At the present time funds for program development are being sought from several sources.

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The Southwestern Library Association has also been awarded a grant from the U. S. Office of Education for an institute for training trainers in the techniques of continuing education. The institute which will be directed by Dr. Donald Foos, will be held at Louisiana State University - Baton Rouge March, 1975. 30 participants from the Southwest will attend. The 30 institute attendees and the others they will train will form the basis for a continuing education network in the region.

In order to develop programs that really meet the needs of the library staffs in the Southwest, the SWLA Interest Group on continuing education designed a survey form that has been distributed widely in the region through the help of the state library associations. Preliminary results showed that the topics most in demand are management, personnel administration, audio-visual techniques and automation. The one day workshop was chosen the most popular format. A complete report on the results of this survey will be published.

At the present time SWLA has developed a program on automation for libraries. In conjunction with other agencies it is working on a continuing education series in management and personnel administration. Planning is also being done in the areas of reference service and training in the development of community programs by libraries.

Initial steps have been taken to establish a reward system and an effective means of program evaluation. Activities of the CELS office are reported in "Update" which is published irregularly.

This summary highlights some of the activities that have been generated by the Martin-Duggan survey. Interest in continuing education has never been higher. Now the opportunity to channel that interest into meaningful activities which will directly affect library staffs is here. Regional continuing education is on its way.

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CELS UPDATE

JANUARY 1975 PUBLISHED BY S.W.L.A.

PEGGY O'DONNELL
COORDINATOR

A Happy 1975! Let's hope it will be known as the year that the Southwest developed an on-going Continuing Education Network for the region. Continuing Education may not solve all the problems of inflation and recession, but a good program will certainly help to make our own work and our service to the public more rewarding.

Having completed my two-month consultant stint, I began my official position as SLICE Office Director and CELS Coordinator on January 1. This memo will bring you up-to-date on the CELS Project activities in 1974 with some comments on plans and programs for 1975.

...AROUND THE REGION Since I'm new to the Southwest, much of my time now is spent visiting the six states in the region. November found me in Oklahoma where I was welcomed enthusiastically by the Staffs of Tulsa City-County Library, Oklahoma County Libraries and the Oklahoma Department of Libraries. I also met with the Executive Board of O.L.A. and visited the Library School at Norman. Later that month, Austin rolled out the red carpet. I thoroughly enjoyed talking to the State Library people and members of the Library School. On December 3rd, I spoke to the Dallas County Library Association. Mid-December was spent in Louisiana at the New Orleans Public Library, the State Library and LSU. Again, I found all the contacts I made invaluable and I loved the Southern hospitality. My final stop was an all day workshop on Management in Shreveport. All of these visits have left me with a very positive feeling of commitment to the cause of Continuing Education. Since I met with library representatives from several agencies in Louisiana, Texas and Oklahoma in 1974, early 1975 I plan to have reached Arizona, New Mexico and Arkansas. These trips are invaluable to me since they enable me to speak directly with you. I discover what is happening in your areas, what you feel needs to be done, and most important for me, what you want CELS to do for you. I look forward to meeting many more of you in the near future.

Future Schedule:

January - Arizona - week of January 6
ALA Midwinter, Chicago - week of January 19
NCLIS Meeting - January 25, 26

February - Austin workshop - February 9, 10
On Library Automation

...the C.E. Exchange - As requested by the Continuing Education Interest Group at Galveston, I've developed a reporting form that will make it easier for you to let me know what continuing education programs are being planned and produced in your area. The first portion can be used for announcements of future events that might attract participants from the

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S.W.L.A. region. The second section is an evaluation of past programs. This is a vital part of the CELS project since I can only locate expertise, resource people and good program designs through your help. A copy of the form is included in this mailing. Please use and re-use. Duplicate the form or write me for extra copies. Any comments or suggestions that will improve the form will be gratefully accepted. All pertinent information and happenings will be reported in the S.W.L.A. Newsletter and/or the C.E. Exchange.

...the CELS Interest Group Survey - Original response was poor except from Texas where I was able to enlist the help of Jay Clark, T.L.A. Continuing Education Chairman, and Linda Schexnadre of the Texas State Library. But as I have visited the other states, I have found that the State Associations and State Agencies were very willing to distribute the survey. Be sure to answer your survey and encourage your co-workers to let me know what their Continuing Education needs are. Results so far show that the top topics are Management, Personnel, Administration, A-V Techniques, and Automation. These topics also scored high on the NCLIS needs survey and exactly duplicated those of the Washington State Library Association Continuing Education needs survey. A full tabulation will be published as soon as the survey has reached a good representation of library staffs. Please help if you can. Remember, CELS needs to reach all types of libraries and library associations, as well as all types of library staff members.

Even though the final results are not in, the topics selected seem to be almost universal so CELS program focus will initially be geared to these choices. The Automation workshop given by John Corbin has already been presented in Texas and Arizona, and we have received requests from other states. John is tailoring the basic workshop to meet the host institutions needs. The very successful Non-Print Institute held at the Galveston Preconference has been preserved in a variety of print and non-print ways and is in the process of being packaged for distribution. Finally, I'm working with Linda Schexnadre, Coordinator of Continuing Education at the Texas State Library, to develop a Management and Personnel Administration series. The series will be planned to cover library management at all levels from small town to metropolitan libraries, so it will be useful to all categories of library workers. When the program design of the series is perfected, it will be available to all other states in the region.

...The National Commission on Libraries and Information Sciences report on Continuing Library and Information Science Education was presented to a group of librarians and information scientists at a meeting in October in Annapolis. As CELS Coordinator, I was asked to be a member of this working committee. We spent two days discussing the recommendations for establishing a Continuing Library Education Network Exchange. The NCLIS group will meet again at Midwinter to plan for the implementation of CLENE. The CELS model will be studied by the committee since it is similar to that proposed for the national network.

...the SWLA and LSU Institute on Continuing Education Program Planning. Don Foos reports applications are coming in from all over the U. S. even though only participants from the SWLA region are eligible. These participants will be selected by a committee at Midwinter. Deadline for applications is January 15. Even if you can't attend, CELS will keep you posted on it and will try to share the Institute's wealth with all of the region.

...the Martin-Duggan Report which provided the data and recommendations that let to the birth of CELS is in the final editing process. The University of Texas at Austin Graduate School of Library Science will publish it early in 1975. Updated with a foreward, it will provide a complete report on SWLA's commitment to continuing education and the steps taken to implement its program. Watch for a future publication announcement.

* * * *

This is a brief report on a very busy two months, but communication is the key to a successful regional program. So on the principle that some news is better than no news, it is offered in the spirit of information sharing. The memo will appear on a more or less regular basis and will attempt to meet many needs: keep all interested SWLA members and officers informed of CELS office activities; provide help to people planning Continuing Education programs; act as an exchange and clearing house; and stimulate (I hope) involvement of more SWLA members in the CELS Interest Group. It will also act as a reminder to you that the success of the program depends on all of you - so please keep me posted on the Continuing Education happenings in your region.

...Please recycle this newsletter.

Here's to a better year of Continuing Education!

Send all information, comments or requests to:

Peggy O'Donnell
7371 Paldao Drive
Dallas, Texas 75240
214 234-1555

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SOUTHWESTERN LIBRARY ASSOCIATION

TO PROMOTE ALL LIBRARY INTERESTS IN THE SOUTHWEST AND MEXICO

MEMORANDUM

TO: CELS Interest Group

FROM: Richard L. Waters, Chairperson

SUBJECT: Status Report

Peggy O'Donnell has now moved to Dallas, found her way in and about Dallas, and has already visited with several state library agencies, library school deans and faculties, and others interested in continuing education. She is the best customer that the Dallas/Fort Worth Regional Airport has.

She and I recently visited, and we identified the following as action which we can do to assist and further continuing education needs in the Southwest:

1. Know and communicate--to Peggy--the continuing education needs in our areas - geographical and type of programs.

2. Identify those persons who are able to serve as resources (teachers, seminar leaders, workshop leaders) for continuing education.

3. Assist by evaluating the above. What do they do best, how can their talents be maximized, what are their weaknesses.

4. Identify future--three/six months in the future if possible--continuing education events (classes, workshops, seminars, meetings, etc.) which you are aware of. See the enclosed CELS Reporting Forms.

5. Accept personal responsibility for disseminating information re continuing education to at least five other libraries and/or individuals who are not members of the Interest Group.

6. Peggy is issuing a memorandum to us and select others between issues of the Newsletter. We can help her by inputting information which she can put into her memorandum. She and I may jointly author this so that it will serve two purposes.

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7. Good programs cost money. Let Peggy know about possible funding sources.

8. If your state or local library association does not have a continuing aducation group--organize one. The closer we can get to the grassroots, the better off we will be.

9. Recruit new members for our Interest Group. Remember--they must be members of SWLA.

10. Last, but by no means least, let us know what you think we should be doing. We do not, should not, be a group which meets every other year and does nothing else.

We must also file a new application. This I will do. The application asks for the name of our Secretary. I have taken the liberty of asking Nan Sturdivant of the Tulsa City-County Library System to assume this responsibility.

Peggy informs me that, except for Texas librarians, response to the continuing education questionnaire has not been as good as expected. Please complete and return yours if you have not already done so--and send one to a friend. If you need additional copies contact Peggy or myself. Her address is 7371 Paldao Drive, Dallas, Texas 75240.

One last item. Several of us will probably be attending the 1975 Annual Conference in San Francisco. Although it is five months in advance, what are your thoughts re having a meeting there?

I hope that all of you had a very Merry Christmas and a joyous New Year. I look forward to hearing from you.

Richard L. Waters
Dallas Public Library
1954 Commerce Street
Dallas, Texas 75201

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CONTINUING EDUCATION FOR LIBRARY STAFFS IN THE SOUTHWEST

(CELS)

1. Reporting Form for Future Continuing Education Programs

   Full Title:
   Dates to be held:
   Place to be held:
   Brief description of program content:

   Sponsor (s):
   Staff/Coordinator:
   Eligible Participants:
   Cost:

   Please include any public relations releases when available.

   If the program is open to library staffs generally, please get the information to the CELS office as early as possible.

   Send to: Peggy O'Donnell
   CELS Coordinator
   7371 Paldao Drive
   Dallas, Texas 75240

2. Reporting Form for Evaluations of Continuing Education Programs Held in Your Area.

   In addition to the information requested for announcements of future programs, please add:

   A. A full report on the content of the program.

   B. A description and, if possible, copies of any materials distributed.

   C. Whether the program was audio-taped, or video-taped.

   D. Evaluations:

      a. Any forms distributed by sponsoring agency to participants with the results.

      b. Personal - your own or any other participant's critique.

         Include names of any resource people who could be used in future programs or training techniques that were particularly effective.

         Do you feel the program could be packaged and used elsewhere in the region?

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Please be critical in your evaluation. A resource person might be very helpful as a consultant in his/her field of expertise, but not a good teacher.

c. Sponsoring Agency Evaluation: If the agency has developed an internal rating or evaluative measure of how successful the planners thought the program was, please see if you can obtain this information for CELS.

Any additional information you feel would be helpful:

APPENDIX H

Distribution Record of This Report

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Library Association and State Library Editors (9)

ASLA Newsletter: Michael Ryan
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New Mexico Libraries: Paul Agriesti
SWLA Newsletter: Pat Smith
LLA Bulletin: Jackie Ducote
Oklahoma Librarian: James Zink
Texas Libraries: Millicent Huff
Texas Library Journal: Mary Pound

Others:

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